The Greentech Revolution

Will the US Be Fossil Free — or a Fossil Fuel Island?



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BY JEREMY BRECHER

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Foreword by Tim Sahay

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The mission of the Labor Network for Sustainability is to be a relentless force for urgent, science-based climate action by building a powerful labor-climate movement to secure an ecologically sustainable and economically just future where everyone can make a living on a living planet.

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Foreword by Tim Sahay: The Green New Deal and the Making of a Greentech Revolution

A Sit-In, and A Wager

8 years ago, a week after Democrats won control of the House after the 2018 midterms, hundreds of teenagers from the Sunrise Movement filled a hallway outside Nancy Pelosi's office. They carried signs, sang, and refused to leave. A single newly elected working class congresswoman from the Bronx – Alexandria Ocasio-Cortez – joined them. By the next day, the phrase "Green New Deal" was on the front pages.

That sit-in was a defiant wager. It bet that climate action would be politically won in the US not as a sacrifice but as a promise of jobs, justice, and a better life. It bet that unions, environmentalists, and black and brown and indigenous frontline communities could stand on the same side. It framed a joint crisis of massive inequality *and* climate change, a plutocratic insurgency *and* a climate emergency, confronting American life that required radical action much like FDR's New Deal confronted the Depression, disciplined Wall Street and renewed American democracy with public investment. For a few years, it looked like the bet would pay off.

Why I Am Writing

Galvanized by the sit-in's challenge to my generation, a year later I became the policy manager of the Green New Deal Network. My job was to translate our green economic populist demands into legislative bills paired with labor and equity standards for Congress and statehouses across the country.

Jeremy Brecher has spent decades writing about the social movements who built green economic populism. His Labor Network for Sustainability advocated for worker-centered climate politics before it was fashionable. This report tells what happened next. It has three movements: an American embrace of that green revolution; a counter-revolution led by Washington's permanent war machine and oil & gas giants that aims to violently make our country into a petrostate island in an electrifying world; and an inspiring global greentech revolution that has made alternatives to those fossil fuels cheap and easy to get for nearly everyone else.

I want to tell a complementary story to Brecher's as a participant: how our coalition was stitched together, what we won, and what were our blind spots. Knowing why we lost the last round matters for winning the next one.

The Story We Lived Through

The Green New Deal (GND) set out to overcome the old divisions of American progressive politics: jobs *against* environment, unions *against* greens, big national groups *against* the frontline communities who live beside polluting

ports, factories and highways. The Network brought together youth climate activists, environmental justice community organizers, national green orgs, and labor unions. As Ted Fertik, my comrade at the network's founding Working Families Party argued in Phenomenal World, our coalition wanted to build a hegemonic "New Climate common sense": a shared assumption, across American society, that there was no future in which fossil fuels would be allowed to burn. From that premise followed a politics of massive public and private investment. Decarbonization would bring jobs, union contracts, investment in left-behind places, and a just transition for fossil fuel workers. Industrial policy, long a dirty word in Washington, would be the main tool, with labor and equity standards attached to every public dollar.

What we wanted was a policy-to-power cycle: Investment would create constituencies, and constituencies would defend those policies from one Congress to the next. We wanted to create a base of popular support for the Green New Deal that was green, economic, and populist at once, and drive a new crop of candidates to offices in Congress and Statehouses across the country. Green: do they make a strong case for clean energy and climate policy? Economic: do they name the costs bearing down on working people and offer real proposals to cut them? Populist: do they name the companies and wealthy individuals profiting from environmental destruction and the cost-of-living crisis, and rein them in? The candidates who passed that test, the Climate and Community Institute found in the 2022 and 2026 midterms, folded the climate crisis into an argument about corruption and corporate greed, and won. Climate works politically not as a standalone issue but as part of the story of economic insecurity.

Our coalition's demands arrived at a political conjuncture, one that Ted and I described as equal parts geopolitics, domestic stagnation, and climate change itself.

- **China** had become the green workshop of the world, dominating the supply chains for solar panels, batteries, and electric vehicles.
- **Stagnation**: the American economy had never recovered from the 2008 Financial crisis. The "China Shock" research of MIT economist David Autor gave the Democrats a story about why de-industrializing towns had abandoned them. Out of that collapse of American social mobility, the end of the American dream, came two insurgencies against the political center: the Trumpist right and the Sanders left.
- **Climate crisis** itself was posing direct threats to health, infrastructure, and political stability.

By the 2020 primary, our insurgent movement forced climate to become a political priority. Candidates from Bernie Sanders to Elizabeth Warren to centrist democrats like Joe Biden competed to spend more money on climate in their campaign manifestoes. Bernie proposed a trillion dollars of public investment a year! Biden's Build Back Better platform borrowed heavily from the Green New Deal, and parts of it survived the 50-50 Senate and turned into Congressional laws – the CHIPS and Science Act, the Infrastructure, Investment and Jobs Act (IIJA), and the Inflation Reduction Act (IRA). Corporate boards made net-zero pledges, and Democratic foreign policy hands began speaking about "clean energy supply chain collaboratives" and "just energy transition partnerships" with developing countries. For organizers who had spent years at the margins, it was heady to hear our arguments from Capitol Hill and the White House. In retrospect, it was also a warning sign. Our arguments were being adopted for reasons that were not quite ours.

What We Got Wrong

Here I owe readers honesty. Our coalition thought hard about jobs and public investment. But we had little to say about issues that caused us serious trouble: imperialism and inflation.

On geopolitics we were largely silent. We invoked mobilization on the scale of World War II but rarely asked who the war was against. When the Biden administration framed clean energy as a race with China, many of us welcomed the support. For the first time in its history, the United States found itself doing catch-up growth against a more advanced rival, and it reached for the oldest tools in the American tradition: Hamiltonian protection of infant industries behind tariff walls. Trump's tariffs on China became Biden's 100 percent duty on Chinese EVs and something yet more dangerous, a "chip war" to "contain" China. China answered with export controls on critical minerals. The administration said plainly that it was protecting workers; consumers would have to be ok with paying higher prices, and the planet would pay though slower cutting of emissions. Their wager was that anti-China protection would build a durable, bipartisan coalition of companies and workers, never mind all the risks - both at home and abroad - of militarism and a new cold war.

On inflation we were caught flat-footed. We built our economic program in an era of near-zero interest rates. But inflation makes societies boil and politicians' heads roll. When prices surged after the pandemic and Russia's invasion of Ukraine, a global wave of anti-incumbent elections followed, and our opponents had a simple story: climate policy made your bills higher. We had no equally simple answer.

What This Report Adds

Brecher shows in detail how the Trumpist coalition quickly created an "anti-climate common sense" to destroy the one we had tried to build. Trump's 2024 campaign made the "Green New Scam" a central theme and said it was climate action that had made everyone's lives worse off. His administration gutted most of the IRA's (Inflation Reduction Act) non-manufacturing credits and declared that the US will not decarbonize. It shared the Democrats' fear of China as a rival and of domestic decline. But the GOP's answers were different: drill more oil and gas and impose sweeping tariffs on every country in the world. The result is, in Brecher's phrase "a fossil fuel island" rejecting cheap green goods from behind a tariff wall, and an isolated America. Every weakness we failed to address became a weapon: inflation, the new Cold War, and benefits that arrived too slowly for ordinary people to feel.

Brecher's report then makes four arguments that change the strategic picture.

1. **The economics have flipped since 2019.** Clean energy has become the cheapest power on earth, which means a Greentech New Deal can be sold as relief from high bills.

2. **The global green revolution accelerated when Washington turned against it.** The Hormuz crisis triggered by Trump's war on Iran has supercharged renewables and EVs worldwide, the revolution is moving "over, under, around, and through" the counter-revolution and eroding it. At home, cities and states kept building, from Minnesota's coal-to-solar hub to New Jersey's community solar.

3. **A largely working-class rebellion against hyperscale data centers is winning** in red and blue places alike. Brecher urges convergence between that rebellion and a Greentech New Deal: expand local fights and

moratoriums, enlist Green New Deal forces to block fossil power for data centers, and push democratic rather than corporate control over major infrastructure.

4. **The stakes are civilizational**: The world is replacing fossil fuels with an electric order, while America risks becoming a fossil fuel island, its isolation deepened by gas-fired data centers and expensive gas guzzling SUV's that the rest of the world sees in their EV's rearview mirror.

The stark choice is a fossil fuel island or a Greentech New Deal, and the local and state programs Brecher documents provide the building blocks for a national transition under democratic rather than corporate control.

Who The Transition Is For

Cheap clean energy is not by itself going to make a socio-political coalition. That's the point I most want readers to take from Jeremy's report, and it's the one most often lost in Washington's debates about industrial policy.

The Biden-era approach rested on attracting private capital with carrots, not disciplining them with sticks. The idea was that the government would remove the risk from clean investment through tax credits and tariff protection, and corporations would do the building. Much of the money flowed to shareholders and to investors who buy tax credits. We fought hard to make tax credits available as "direct pay" to school districts and public entities. We fought hard to attach labor standards to some credits but corporations fought against extending them to others. Public ownership was almost entirely absent. When the political winds shifted, the firms that had been courted with subsidies paused projects and switched from making EV batteries to making storage batteries for datacenters (that's what Ford has done!). The counter-revolution did not even need to repeal everything: Trump's firing thousands of public servants at the IRS and the Department of Energy removed the people who enforced the guardrails, and the remaining credits curdled into carbon sludge for fossil firms. A transition run through private balance sheets and a hollowed-out state proved easy to reverse, because the people who stood to benefit most had little stake in defending it.

Brecher's report points toward a different model. The most durable projects he describes are the ones communities own or control. They include Ann Arbor's voter-approved Sustainable Energy Utility, which puts solar and batteries on residents' homes under city ownership, and New Jersey's community solar program, which guarantees low-income households lower bills. Worcester's community benefit agreement ties a green industrial park to local hiring and union wages. Seattle's climate assemblies give workers and neighborhoods a direct voice in policy. Each of these answers a question that the market cannot: what should be produced, for whom, and under whose control?

The AI data center rebellion is truly a bottom-up rebellion. A handful of tech companies are privately deciding how much power the country will use, where it will come from, and who will pay for it. Communities across the country, many of them poor and many of them in red districts, have answered that these decisions belong to the public. Their demand is for democratic authority over infrastructure that shapes everyone's bills, water, and climate.

For movement organizers, the lesson is that the falling price of clean energy has changed the political terrain. The surplus it creates will be captured by someone. If utilities, hyperscalers, and investors capture it, the Greentech revolution will

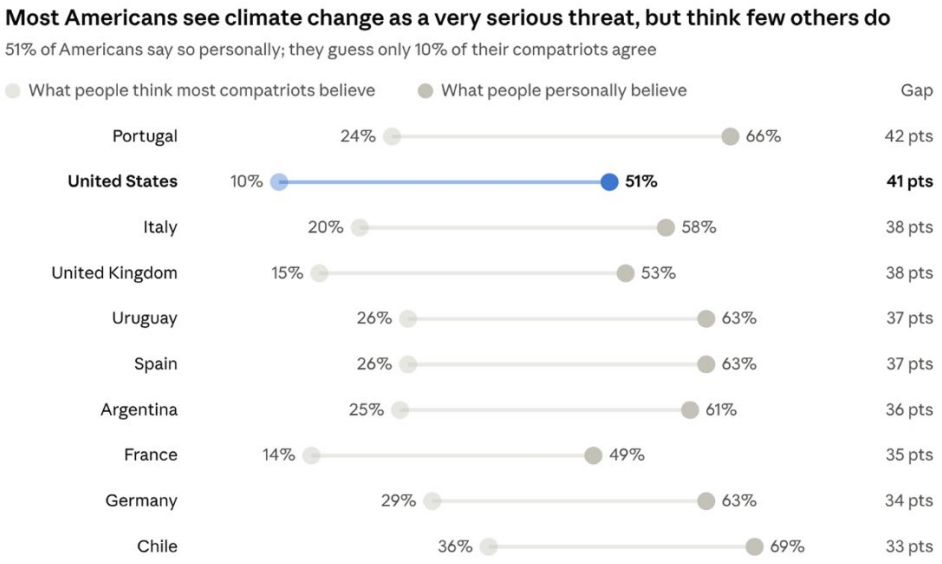
deepen inequality even as it cuts emissions. If public power, community ownership, unions, and democratic planning capture it, it can lower bills, cut pollution, create good jobs, and build resilient communities.

For politicians, the lesson is practical. Voters punished both parties for high prices. Clean electricity is now the cheapest power on earth, but only public institutions can guarantee that those savings reach households rather than shareholders. A Greentech New Deal that delivers visible local benefits is harder to repeal than a tax credit. Its constituency would defend it. The choice is not only between a fossil fuel island and a Greentech future. It is also between a Greentech future owned by a few and one governed by the many.

The Next Round

The lesson I draw from my years in the GND coalition is that our movement cannot allow Washington's national security goals to dictate public policy. Our arguments were adopted by officials who wanted to beat China and used our GND coalition as a junior partner. The next Green New Deal must answer the questions we ducked. It needs an internationalist not imperialist foreign policy that treats the energy transition as a shared global project rather than a cold war in which only militarists and monopolists win. It needs an account of affordability that puts clean power at the center of the fight against high prices. And it needs a base of workers and communities strong enough that its gains cannot be repealed by another administration.

It also needs a different way of talking. In the 2026 campaign, climate was conspicuously absent from Democratic messaging, and the strategy of "climate hushing" gained respectability. It is silly to say Democrats should never talk about climate; people who have spent years championing the Green New Deal keep winning elections. Our mistake, arguably, was to treat climate primarily as an investment opportunity with some justice upsides. It is a force that is actively burning down homes, driving up costs, and upending life as we know it. Brecher's report shows how to talk about it that way: as a fight over who pays for the fossil fuel economy, and who benefits from replacing it.



Source: Lloyd's Register Foundation World Risk Poll via Gallup

More than half of Americans personally see climate change as a very serious threat, yet only one in ten believes most of their compatriots agree, one of the widest perception gaps in the world, which means Americans who care about climate are far less alone than they have been led to think.

The Blue Wave in the 2026 midterms suggest Americans are ready to reject the fossil fuel counter-revolution. This report explains what they should demand in its place. I hope it is read widely by everyone who wants to win the next round, and the next, and the next. Climate Change and Inequality after all, are not going away either.

Tim Sahay, New York, November 5, 2026.

Introduction

"Greentech" is technology that reduces or repairs harm to the environment. Today the world is undergoing a Greentech revolution. Energy produced from sun, wind, and water can replace the fossil fuel extraction and burning that is the primary source of greenhouse gases and therefore of our climate catastrophe. And that renewable energy is now cheaper, safer, and more efficient than energy produced from fossil fuels. The Greentech revolution promises to arrest the plunge toward climate destruction and to make energy cheaper, cleaner, and more secure for the people of the US and the world. It offers the possibility of a just transition to economic prosperity and climate safety.

US President Donald Trump and his fossil-fueled allies are conducting a counter-revolution designed to reverse the Greentech Revolution and make not only the United States but the entire world increasingly dependent on fossil fuels. The result for the American people is disastrous: not only accelerating climate disaster, but also economic isolation as a "fossil fuel island" in the midst of a world rapidly transitioning to Greentech.

The overwhelming repudiation of Trump in the 2026 midterm elections may make it possible to put some limits on his efforts to further deepen US dependence on fossil fuels. But constraining additional Trumpian fossil fuel extravaganzas will not be enough to prevent the US from becoming a fossil fuel island. That requires a full embrace of the Greentech revolution – a just transition to a fossil free economy.

This report tells the story of the Greentech revolution and the continuing struggle between it and the forces trying to roll it back in order to perpetuate the extraction and burning of fossil fuels. While the story it tells is global, this report focuses on how that struggle affects the American people and how Americans are contributing to the Greentech revolution.

Chapters 1-3 explain the Greentech revolution and describe how it is transforming energy production and consumption worldwide. Chapters 4-6 lay out the tentative development of Greentech in the US and the counter-revolution attempting to abort it. Chapters 7-9 tell how grassroots movements, cities, and states are implementing the Greentech revolution from below, even in the midst of the fossil fuel counterrevolution. Chapters 10-11 recount the rise of hyperscale data centers, their threat to the Greentech transition, and the unexpected emergence of a massive popular movement to restrain them. Chapter 12 lays out the terrible price Americans will pay if our country continues to eschew the Greentech revolution – isolation as a fossil fuel island in a Greentech world.

Chapter 1: The Greentech Revolution

Unexpected breakthroughs are making energy produced from sun, wind, and water cheaper, safer, and more efficient than energy produced from fossil fuels. This is already transforming the way the world produces and uses energy and it will further transform economics, politics, and society. What is this "Greentech revolution," and what it will mean for Americans?



Wind farm Shanxi, China, November 4, 2015. Photo credit: Hahaheditor12667, Wikimedia Commons , CC BY-SA 4.0

Energy runs the world, and how energy is produced and used is undergoing a historic transformation. As UN secretary general António Guterres put it, "We are on the cusp of a new era. Fossil fuels are running out of road. The sun is rising on a clean energy age."

In July 2025 LNS prepared the report "How to Make the Fossil Fuel Powers 'Stranded Assets'" looking at this transformation from a global perspective. The Greentech Revolution and Trump's attempted counter-revolution have been frequently analyzed in terms of their effects on US-China geopolitical rivalry, the prospects for fossil fuel corporations, the wealth of investors, and the implications of these developments for Wall Street. This report examines this new reality in terms of its impact on the American people – and what we can do about it.

If we get on the right side of the Greentech revolution we will be in a position to solve many of the most serious problems we face – not only climate destruction and environmental degradation, but also racial injustice, insecurity, economic inequality, job degradation, healthcare collapse, international conflict, militarization, and many others.

But right now, our country is on the wrong side of this transformation, and if we stay there, we face a future of economic, social, and environmental doom. Currently the US government is doubling down on fossil fuels and doing everything it can to roll back the energy revolution, not only at home, but worldwide. This is manifested in defunding of renewable energy, astronomical tariffs on climate-protecting technologies, demands that other countries buy fossil fuels, payoffs to fossil fuel companies, and many other actions. The American people will pay a heavy price for being on the losing side of the energy revolution.

You may ask, is the Greentech revolution just hyperbole? This report will give you the facts to answer that question. It starts by reviewing the cascading transformation of the system of energy production and consumption. This is a global revolution, but it has so far been largely driven by China's huge advances and investments in Greentech -- technology that reduces or repairs harm to the environment. Greentech includes ways of producing energy like solar and wind power; ways of distributing it in time and space like energy storage and energy grids; and ways of using it like EVs and heat pumps.

This report then looks at the implications for Americans of their government's attempt to promote fossil fuels and forestall the Greentech revolution. The rising price of energy in the US, the declining competitiveness of the American economy, and the devaluing of our entire fossil- fuel-dependent infrastructure are the unavoidable results – and they are already under way.

There is an obvious alternative – adopt Greentech as rapidly as possible and do so in a way that also addresses our burgeoning social and economic problems. This may sound familiar as the strategy of the "Green New Deal" and indeed it is. But this "Greentech New Deal" can be driven forward by an entirely different economic environment – one in which the transition to fossil free energy is not a costly and painful duty, but rather a "free lunch" that the American people can use to make a happier, healthier, and more just society and world.



During his first presidential term (2016–2020), Donald Trump, who has denied climate change, reversed more than 100 environmental regulations. A photo of President Donald Trump in the Oval Office with several of his executive orders. Photo credit: The White House, Public Domain.

This will necessarily be a phased development. We are currently enmeshed in a country and world being transformed by MAGA. We are undergoing attacks not only on Greentech energy, but on everything that is good for people, from healthcare and economic security to peace and justice. And this destruction of the things we rely on for a good life is occurring in the context of the global Polycrisis, marked by war, arms buildup, and great power rivalry; economic disorder and increasing inequality; the rise of para-fascist movements, parties, and governments; and destruction of the climate and environment. Nonetheless we can start building the Greentech New Deal right now – from below. This report will explore how and present many examples of progress that is happening even in the midst of the Trump autocracy.

After getting rid of MAGA and its drive for fossil fuel domination, Americans will face a very difficult situation, somewhat akin to Russia in the "Yeltsin Era" after the fall of the Soviet Union, when major social systems such as healthcare,

industry, agriculture, urban infrastructure, the energy system, the legal system, finance, and many other systems were in severe disarray. In addition, we will face the accelerated degradation of the global climate. The post-MAGA transition will require a rapid expansion of the Greentech New Deal from Below, a national Greentech New Deal, and a global Greentech New Deal that replaces the polycrisis with global cooperation.

Transition to what? Restoring the past but with renewable energy replacing fossil fuels would be a monumental achievement, but it would still leave most of our most serious problems intact. The goal cannot simply be to preserve existing patterns of production and consumption with different energy sources; it must also involve asking what should be produced, at what scale, for whose benefit, and under whose control.

The Greentech revolution gives us the opportunity to make this transition be a transformation to the world we need and want. Whether that opportunity is realized, however, will depend on struggles over ownership, priorities, and democratic control. MAGA has made it difficult even to think about another, better future. But as we push it toward the exit, we can also start envisioning the future we want and how we might get there from here –what is often called a "just transition."

The era of Trump and the polycrisis is wildly unpredictable. Daily gyrations make it impossible to know, let alone understand, what is happening day by day. It is essential to counter the daily abuses of an authoritarian regime – to implement what I have called "Social Self-Defense" against it. But that does not preclude identifying longer-term forces and trends that persist through the insanity of the day, and ways to use them to make another world possible. In this report I call attention to some of those persisting forces and trends and consider how to utilize them.

Bill McKibben in his new book Here Comes the Sun has done a great service in calling attention to the revolution in solar energy. But the Greentech revolution goes far beyond solar energy to include literally hundreds of micro-transformations in energy production and use and their impacts.

There have been various ways of interpreting the causes of the Greentech revolution. The British thinktank Ember says it is primarily about electro tech replacing fossil fuels. The American thinktank RMI sees it as the convergence of three factors: renewables, electrification, and efficiency. Economist Paul Krugman argues that, in contrast to earlier technological revolutions like the computer revolution, it is the result of an almost accidental confluence, since "from a technological point of view solar, wind and batteries don't seem to have much in common."

Two interrelated non-technological factors are essential for understanding the rise of Greentech. First, the urgent need to address the climate crisis — a "social need" that was not reflected in market demand – has led to massive research, experimentation, and investment from people and institutions ranging from giant corporations to basement tinkerers. Second, industrial policy decisions favoring Greentech have been made in many places, but above all in China.

The Greentech Revolution is global, but its dynamic driver is China. Nearly 64 per cent of the new renewable electricity generated in 2024 was generated in China, according to a report from the International Renewable Energy Agency (IRENA). China added almost 374 billion watts of renewable power – three-quarters of it from solar panels – in 2024. That's more than eight times as much as the United States and five times as much as Europe.



Youtube video: Sustainable China | Clean Energy China

Technological advancement in itself has never dictated the form or speed of economic and social change. To use Marxist jargon, production relations and social relations are inescapably intertwined. It would be foolish to interpret the original Industrial Revolution exclusively in terms of the spinning jenny and new uses for steam power or alternatively in terms of land clearances and the Poor Law. It would be equally foolish to ignore the realities of the Greentech revolution or to believe it will somehow inevitably solve our problems all by itself.

Indeed, fossil fuel use keeps rising, so does the emission of greenhouse gases, and therefore so does global warming. Greentech must replace, not just add to, fossil fuel burning. But cheaper Greentech makes any new fossil fuel investment a cost not a benefit. Limiting climate catastrophe requires massive campaigns to install Greentech – and to shut down fossil fuel infrastructure and burning.

Chapter 2:
The Greentech Revolution: Energy Production

The use of sun, wind, and water rather than fossil fuels to produce energy is transforming economies around the world. How far has that transformation already gone and what is likely to be its future?

The idea that new, green technologies would save the world from climate catastrophe has long been a staple of much of the environmental movement. It has also been a central argument of those who have said we should wait to implement climate protection until those new technologies have matured. Now that moment is here. Often referred to as the "Greentech revolution," a historic change in the production and consumption of energy is already revolutionizing the world. This chapter will sketch the Greentech revolution in energy production; the next will survey the parallel transformation in energy consumption.



Electric Cars Charging at a Modern Charging Station. Photo credit: siwabudv, Envato.

A recent report from the UN lays out the dimensions of the Greentech revolution:

> "With spectacular cost declines and manufacturing capacity growth, the global deployment of solar, wind, and electric vehicles (EVs) has exceeded even the most optimistic projections and continues to advance exponentially. The world is poised for a breakthrough in the rapid and widespread transition from energy systems dominated by fossil fuels to those dominated by homegrown, low-cost renewables."

Greentech production and consumption will transform not only our energy system, but our entire society. The US is currently not only eschewing this transformation, but under President Trump and the MAGA movement it is actively trying to reverse it. Not only will that prove futile; it forgoes the new vistas of possibility that the Greentech revolution opens up for the US as well as the rest of the world.

Greentech includes varied technologies that will make possible a wide range of choices for what kind of future we want. It can support large and small, centralized and decentralized economic and social forms. Its consequences will depend on how these technologies are owned, governed, and deployed.

Fossil Free Energy

The Greentech revolution is not simply something that is predicted for the future; it is happening right now.

The vanguard of the Greentech revolution is the generation of electricity. Solar and wind power have become the fastest growing sources of electricity in history. 2024 was the 23rd year in a row that renewable capacity additions set a new record. Growth in renewable energy is far outpacing that in fossil fuels in the power sector. In 2024, renewables worldwide made up 92% of all new electricity capacity additions and 74% of electricity generation growth. Between 2015 and 2024, annual electricity capacity of renewables increased by 140% while that of fossil fuels increased by 16%. As a share of global annual electricity generation, renewables increased by 81% while fossil fuels increased by 13%. Renewables are now nearly equal to fossil fuels in installed electricity capacity. And the rate of installation itself is accelerating: In the first six months of 2025, the world added 380 GW of new solar capacity — 64% higher than the 232 GW installed during the same period in 2024.



Engineer Inspects Wind Turbine in Rural Setting. Photo credit: YuriArcursPeopleImages, Envato.

The explosive growth of Greentech electricity is driven by its declining cost – especially in comparison to fossil fuel energy. By 2023, an estimated 96% of newly installed, utility-scale solar photovoltaics (PV) and onshore wind capacity had lower power generation costs than new coal and gas plants. 75% of new wind and solar PV plants provided cheaper power than *existing* fossil fuel facilities. Money could be saved – and is being saved – by halting all new fossil fuel investment and building new renewable capacity instead; money could be saved by closing down three quarters of all existing fossil fuel facilities and replacing them with new wind and solar PV plants.

To compare different costs of generating electricity, energy experts use a formula called "average levelized cost of electricity" (LCOE). This is a fancy term for electricity's average cost over a new facility's lifetime. According to IRENA's 2024 "Renewable Power Generation Costs," electricity from new utility-scale solar PV in 2024 was 41% cheaper than the least-cost new fossil- fuel-fired option. Onshore wind was 53% cheaper than fossil fuels. 91% of new renewable projects offered cheaper electricity than the lowest-cost newly built fossil fuel alternative.

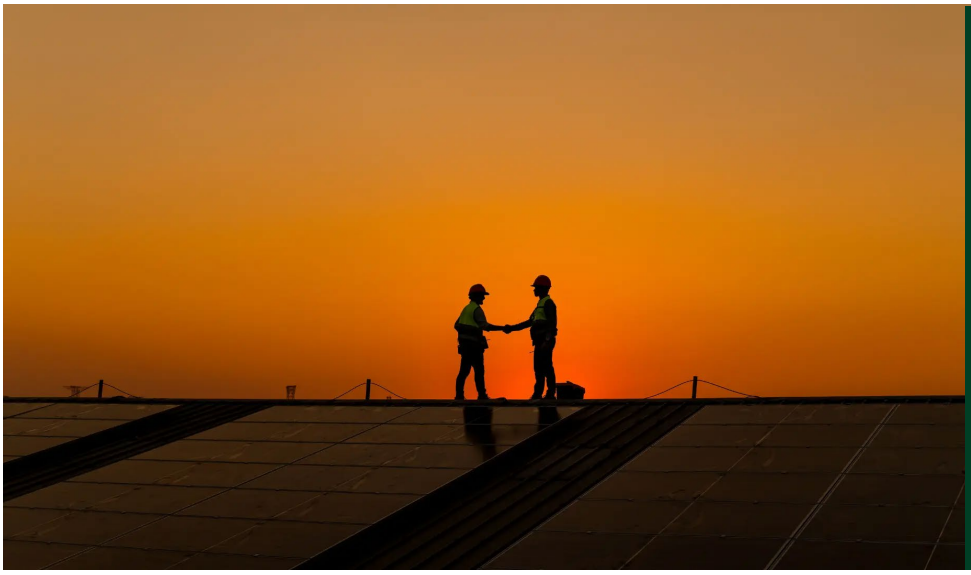
This reduction in cost is not a blip but the acceleration of a long-term trend. The cost of utility-scale solar PV has fallen by 80–90% each decade since 1960, whereas the costs of fossil fuels, while fluctuating wildly, had no long-term decrease. According to the thinktank RMI, just in the last decade "clean-tech costs have fallen by up to 80%, while investment is up nearly tenfold and solar generation has risen twelvefold." According to *Our World in Data*, in 2009 renewable energy was more than three times as expensive as coal. Now a new solar plant is almost three times cheaper than a new coal plant.

Not surprisingly, the Greentech revolution has led to a shift in global energy investment. Global annual clean energy investments first surpassed those for fossil fuels in 2016. Investment in fossil free technologies worldwide passed $2 trillion in 2024 – $800 billion more than for fossil fuels. Fossil free investment has increased 70% in the last decade. The IEA projected that clean energy investments would reach around $2.2 trillion in 2025, while fossil fuel investments will total $1.1 trillion. This means that, for every dollar going to fossil fuel production, two dollars are invested in clean energy.

A Fossil Free Future?

What about the near-term future? According to the most recent IEA report on renewables, global renewable power capacity is expected to double between now and 2030. This is roughly the equivalent of adding China, the European Union and Japan's power generation capacity combined to the global energy mix. The increase in solar PV capacity is set to more than double over the next five years. Global capacity for wind power is expected to nearly double by 2030.

Nor is the advance of renewable energy technology likely to end soon. Current innovations include perovskite cells, which are cheaper to produce and absorb a broader spectrum of sunlight than silicon ones, and transparent solar panels which can be integrated into windows and facades of buildings.



Workers Shaking Hands at Solar Panel Installation Site. Photo credit: APChannel, Envato.

The Greentech revolution opens a door for the rapid, radical elimination of fossil fuel burning and extraction. But we still have to go through that door. In reality, GHG emissions are still rising, as is the rate of global warming. The average level of carbon dioxide in the Earth's atmosphere climbed by the largest amount on record between 2023 and 2024, according to the World Meteorological Organization. It was the largest increase since modern measurements began in 1957. 2023, 2024, and 2025 were the Earth's hottest years in recorded history.

To reach international climate goals, the growth of Greentech and the shrinking of fossil fuel industries needs to proceed much faster. According to the IEA, "The annual investment required in renewable power still needs to double to achieve a tripling of installed renewable capacity by 2030." This needs to be accompanied by rising spending on "grids, storage and other forms of flexibility" to ensure "secure and cost-effective utilization of this capacity." Spending on efficiency and electrification needs to "almost triple" within the next five years to deliver a 4% annual energy intensity improvement by the end of the decade.

The Greentech revolution can facilitate a reduction of GHG emissions and thereby a slowing of global warming, but it will by no means do so at a rate that will halt even the most devastating consequences of climate change. Simply adding Greentech to an "all-the-above" energy mix will do little to reduce climate devastation. Replacing fossil fuels is necessary,

but it is not sufficient unless it is accompanied by a decisive phaseout of fossil fuel extraction and use. That will require decommissioning fossil fuel infrastructure and leaving fossil fuels in the ground.

The Greentech revolution doesn't guarantee such a result, but it does make it far more feasible. The burgeoning expansion of manufacturing capacity for producing renewable infrastructure provides an example. Non-fossil fuel sources are expected to meet all global demand growth out to 2027, 95% with renewables. Existing and announced solar PV and battery projects are already enough to achieve the global climate goal of tripling renewable capacity by 2030.

The transition to renewable energy can be further accelerated by deliberate action. The IEA's report "Strategies for Affordable and Fair Clean Energy Transitions" details how targeted policies and investments can reduce the operating costs of the global energy system by more than half over the next decade compared with a trajectory based on current policies. That would open a pathway towards global net-zero emissions by 2050.

This report focuses on Greentech that uses energy from the classic renewable sources: sun, wind, and water, and on technologies that reduce the amount of energy needed. It eschews technologies that are likely to extend rather than terminate fossil fuel burning, such as carbon capture and most hydrogen; it similarly eschews technologies like nuclear energy that involve high costs, serious environmental impacts, and catastrophic risks.

Like any revolution, the Greentech revolution is marked by "uneven and combined development." Some technologies, such as solar, wind, and battery storage, are racing ahead; others, like building efficiency and air transportation, are lagging behind. Similarly, some countries, notably China but also Pakistan, India, and Brazil, are racing ahead while others, most obviously the United States but also Russia and Saudi Arabia, are dragging their heels or intentionally trying to tank the Greentech revolution. Their success would mean disaster for the American people. But it is far from certain that they will be able to prevent America's self-liberation from fossil fuels.

Chapter 3: The Greentech Revolution: Energy Consumption

Radical, unanticipated developments in electrification, storage, distribution, and other technologies are transforming not only the way energy is produced but also the way it is used. Like the transformation in energy production, these advances in energy consumption are transforming economies and creating new opportunities to protect the climate and improve our lives.

In the previous chapter we examined the impact of the Greentech revolution on the production of energy. But energy production is only one side of the Greentech revolution. The other is providing that energy where it is needed when it is needed, shifting energy consumption from fossil fuels to electricity, and using that energy more efficiently so less of it is required. As the *FT* wrote in "The Reshaping of Energy Consumption," "Just as important as the development of new wind and solar farms to generate electricity without carbon dioxide emissions" is "the overhauling of vehicles, heating systems, and factories."



WNissan LEAF charging at the Freedom Station in Houston, TX. This is an eVgo Network station with both Level 2 and DC fast chargers. Photo credit: evgonetwork (eVgo Network). Original image was trimmed and retouched (lighting and color tones) by User:Mariordo, Wikemedia Commons, CC BY 2.0.

Energy Storage

After energy has been produced it often must be stored until it is needed. Enter the Greentech revolution in energy storage. Over the past 15 years the cost of energy storage has dropped 95%. In 2025, Chinese batteries appeared headed for a further 30% decline. Global battery storage deployment in 2025 expanded 40% from 2024.

More change is at hand. For example, sodium-ion batteries are safer than lithium batteries and do not require destructive extraction of materials like lithium, cobalt, phosphorus, and copper. Materials for sodium batteries are far cheaper than those for lithium batteries. BYD opened a sodium-ion battery factory in 2024, and is producing a large sodium-ion battery energy storage system (BESS) called MC Cube-T. Sodium-ion storage is likely to make it possible to replace fossil fuels with electricity in areas that until now have been considered intractable, such as heavy trucks and long-distance shipping.

This is only one of several impending battery breakthroughs. For example, long duration energy storage is increasing today's typical storage time of about 4 hours to many times as long. Google recently announced investment in long duration energy storage (LDES). "Through a new long-term partnership with Energy Dome, we plan to support multiple commercial projects globally to deploy their LDES technology." Toyota has developed an all-solid-state battery that provides EVs with smaller, more durable batteries that charge in minutes and deliver longer ranges between charges.

Energy Distribution

After energy has been produced it needs to get to where it is needed. Led by China, there is a revolution in long-distance power transmission. One ultrahigh-voltage Chinese power line stretches more than 2,000 miles from the sparsely populated far northwest to the populous, industrialized southeast — the equivalent of sending electricity from Idaho to New York City. This is one of 42 long-distance power lines, each able to carry more electricity than any utility transmission line in the United States. China's transmission technology is far more efficient than others. And China plans systematically; it is now building the world's first nationwide grid of ultrahigh-voltage power transmission lines. By 2050, China plans to have three times more ultrahigh-voltage routes in operation.

At the opposite end of the scale, microgrids are providing new ways of distributing energy locally. The Department of Energy's National Renewable Energy Laboratory defines a microgrid a s a group of "interconnected loads and distributed energy resources that acts as a single controllable entity with respect to the grid." It can connect and disconnect from the grid to operate in grid-connected or island mode. It can therefore keep a local grid running even when the wider grid fails. Microgrids allow coordination and synergism among small-scale, local energy infrastructure like generators, renewables, and batteries. That allows them to save costs, reduce the need for energy, and make money by selling excess electricity.



Construction workers build the frame for a one-megawatt solar microgrid project at Fort Hunter Liggett, Calif., Dec. 22, 2011. Photo credit: U.S. Army Corps of Engineers Sacramento District Licensing, Wikimedia Commons, Public Domain.

Microgrids are now being used in hospitals, universities, neighborhoods, and many other venues. In Petaluma, CA for example, the newly constructed 131-unit Meridian at Petaluma North Station affordable apartment complex includes a solar and energy storage microgrid. The net-zero project will generate and manage all its energy onsite. Its microgrid includes a 1-MW solar array consisting of rooftop-mounted panels and solar canopies in the parking lot. A 4.3 MWh battery is designed to support the complex for three to four days during a power outage. Parking spaces with bidirectional EV chargers directly wired into the microgrid will allow EVs to charge from the solar array — and provide electricity back to the building when needed.

Transportation

The largest shift so far from fossil fuel burning to electricity is the replacement of gas guzzlers with electric vehicles (EVs). Not only do EVs use electrons rather than gasoline; they use 2-4 times less energy than their fossil fuel counterparts. Sales of EVs have been rapidly growing globally, increasing by over 33 times, from 0.5 million (1% of all car sales) in 2015 to over 17 million (more than 20% of all car sales) in 2024. EVs now account for almost half of all car sales in China, 20% in Europe, and more than 10% in the US . EV sales in Asia and Latin America increased by over 60% in 2024 to almost 600,000. Electric vehicles made up 80% of Norway's new car sales last year. Electric car sales in 2025 exceeded 20 million worldwide, more than a quarter of all cars sold.

EVs are only part of the Greentech transformation of transportation. Electrification and system reorganization have the potential to transform rail transportation: In the English town of Aldershot, solar collectors are directly delivering electricity to drive trains; the developer says, "If you are a railway, this is the cheapest electricity you can buy." In

China, 30,000 miles of high-speed rail lines run on electricity. Buses, subways, light rail, and other public transit can now be provided at far less than the cost of auto transportation due to electrification and technological improvements. With emerging battery technologies, ships and planes may be electrified at competitive cost. At the other end of the scale, electric bikes providing "micromobility" are already a rapidly expanding transportation niche. One recent example is a four-wheeled bike for individual and commercial cargo haulers.

Agriculture



Solar is growing in Alaska, ACEP is helping the industry and communities. Video credit: Alaska Center for Energy and Power | UAF

Agricultural techniques are turning farms from producers to reducers of greenhouse gases. For example, regenerative agriculture provides farming and grazing practices that withdraw carbon from the atmosphere by restoring degraded soil biodiversity. New technologies are allowing farmers to grow crops underneath solar panels. The *New York Times* recently featured an "agrivoltaics" installation in Houston, Alaska, adapted to the farm's extreme northern location. "The rows of panels on the 45-acre site are set 50 feet apart, much wider than at lower latitudes, and they collect solar power on both front and back in order to capture the maximum amount of summer sunlight as the sun dances across the horizon all day and all night." The electricity produced from such agrivoltaics can run farm equipment and be sold to provide an extra source of income for farmers; the food produced can help meet local food needs.

As in so much Greentech, China is creating radical advances in agrivoltaics. For example, the Chinese company GCL says it has combined four new agrivoltaic technologies: Bifacial solar panels harvest sunlight from both sides, enabling them to assume a space-saving vertical position when needed. Tunable solar panels that enable more or less light to pass onto crops can be adjusted to a range of 15-40% light pass-through. Elevated racks can be raised to 9 feet with tracking capability to optimize the sun-collecting angle. Advanced system management integrates meteorological data, crop growth sensors, inverter analytics, and AI algorithms to optimize module tilt and irrigation schedules.

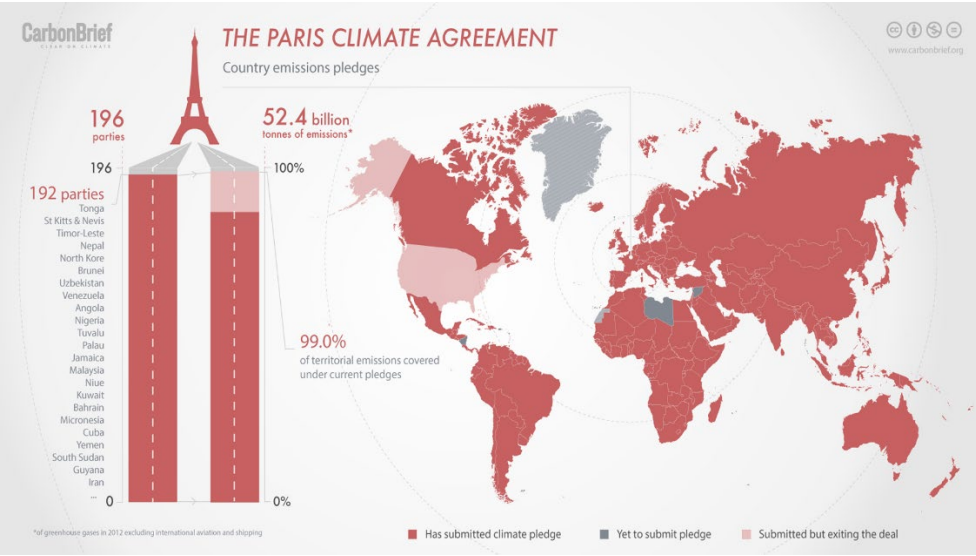
Greentech Unlimited

There are thousands of Greentech goods, services, and systems that have been introduced or are in development around the world that will increase efficiency and reduce GHG emissions – far too numerous and diverse to review

comprehensively here. For a knowledgeable review, see Mark Jacobson's Still No Miracles Needed. A few of the most important additional sectors of Greentech advance:

- ***Climate-safe factories*** are now being built around the world. For example, Ford has opened a carbon neutral assembly plant in Cologne, Germany, to produce EVs for the European market. According to Ford, the plant uses "digital advancements that connect machines, vehicles and workers" including "self-learning machines, autonomous transport systems, and big data management." New technologies are even reducing the carbon released in steelmaking, one of the most greenhouse-gas-intensive industries on Earth.
- ***Circular reuse and recycling*** includes the upcycling of waste materials into new products, promoting a cycle of continuous use, and GHG-reducing waste management practices like composting. It can include air and water filtration systems, waste-to-energy technologies, and methods for safely disposing of or repurposing industrial waste.
- ***Public transit*** may well be the most cost-effective single way of reducing greenhouse gas emissions.
- ***Green construction*** is substituting low-carbon materials like hempcrete and recycled steel for more climate-destructive materials.
- ***Greentech building decarbonization*** is creating carbon-neutral buildings. It includes insulation, electrification, and on-site renewable energy. Improved heat pumps can produce three or more units of heat for every unit of electricity they use.
- ***Protecting and restoring ecosystems*** can rebuild degraded lands, preserve endangered species, and support sustainable agriculture practices.

These are only a few of the many examples of Greentech transformations of consumption. More are being implemented every day.



Infographic: Who has pledged an INDC so far, and what percentage of the world's emissions are covered. Credit: Rosamund Pearce, Carbon Brief, based on EU data. Only UN parties have been included in the emissions total. Greenland is an autonomous territory of Denmark, not covered by the EU's INDC. It is not a UN party. Taiwan is also not a UN party. Source: Carbonbrief.org

Reducing energy consumption can make an important contribution to the transition to climate-safe energy. For example, the IEA's modelling of a world on track to meet the Paris agreement targets for GHG reduction shows final energy consumption falling by as much as 15 percent compared with current levels, by 2035, even as GDP continues to grow. That's because of electrification and other energy efficiency measures such as better insulation.

Many forms of Greentech production and consumption are now far more efficient and therefore less costly and more competitive than fossil-fuel-based systems. Their overall ecological benefit, however, will depend in part on whether efficiency gains are accompanied by reductions in fossil fuel use and unnecessary resource consumption. This Greentech revolution will have profound effects on the future of the US as well as the rest of the world.

Donald Trump and his MAGA allies are determined to reverse the Greentech revolution. Their success would mean catastrophe for the US economy and the American people. Conversely, the Greentech revolution has enormous potential benefits for the US economy and for the American people.

Chapter 4:
The US and the Greentech Revolution

The previous two chapters described how Greentech technologies that protect and improve the environment are revolutionizing energy production and consumption worldwide. The Greentech revolution has also been under way in the US, but it has been severely retarded by the power of the fossil fuel industry and its allies and the policies they have promulgated.



Plant Bowen, coal-fired power station in Bartow County, Georgia, 2012. Photo credit: Sam Nash, Wikipedia Commons, CC BY-SA 3.0.

What we today call renewable energy was once America's only energy. From the start of European settlement of America to the late 19th century, firewood and waterpower were the predominant sources of energy. The work of animals, workers, and slaves likewise embodied "renewable energy." Coal surpassed wood around 1885. Petroleum surpassed coal in 1950. Natural gas surpassed coal in 1958. Fossil fuels—coal, petroleum, and natural gas—dominated US energy for

more than a century and a half, accounting for nearly 83% of total U.S. energy consumption in 2023. Renewable and nuclear energy supplied most of the remaining 17%.

Fossil fuels radically increased the amount of energy available for all purposes. Fossil fuel energy became entwined with every aspect of American life, from homes to transportation to manufacturing to agriculture. Indeed, it was largely the basis for the "American way of life." Fossil fuels also largely shaped America's relations with the rest of the world, as the US exported massive quantities of coal, oil, and gas, dominated much of the world's fossil fuel markets, and fought wars in fossil fuel-rich regions of the world that led to further control of global fossil fuel resources. Fossil fuel industries, and businesses, workers, and communities dependent on them, became a powerful force in shaping American politics, society, and daily life.

In the second half of the 20th century, new forms of renewable energy began to emerge in the margins. The earliest roots of the Greentech revolution in the US could be traced to the first practical silicon photovoltaic cells in the 1950s; the first rechargeable lithium-metal batteries in the 1970s; and the world's first wind farm around the same time. Jimmy Carter installed solar panels on the White House in 1979. But the power of the fossil fuel industry and its allies blocked attempts to develop fossil free energy. The 2001 Cheney report projected that renewable energy other than waterpower would account for less than 3 percent of total electricity generation by 2020. (The actual proportion by 2020 was six times higher.) On the consumption side, energy conservation was largely the realm of hobbyists; gas guzzlers remained the order of the day.

Doubling Down on Fossil Fuels



An automobile dealership in Orland, California which closed after General Motors cut ties with it and several hundred other dealers as part of its Chapter 11 bankruptcy restructuring efforts in 2009. Photo credit: John Martinez Pavliga from Berkeley, USA – Contemporary American Auto Dealer, Wikipedia Commons, CC BY 2.0.

Starting with the 1970s energy crisis, the US spent billions of dollars to promote domestic fossil fuel energy supply chains, mostly for natural gas. In 1976 it established the Gas Research Institute (GRI), a public–private partnership with an annual budget of $200 million. The GRI followed a "whole supply chain" approach. It funded research on enhanced oil recovery, gas transportation, household appliances, and building systems. It also directly funded "drilling experiments, the development of household appliances, and marketing campaigns."

It was not only the government that invested in fossil rather than renewable energy. While Chinese industrial policy was focusing on electric vehicle production, US auto companies expanded their investments in high-emission trucks and SUVs. They opposed higher standards for fuel economy and carbon emissions. Until 1996 the Big Three did not produce a single commercial electric vehicle – allowing Tesla to corner the US market for EVs.

In 2008, rising gas prices and the Great Recession devastated the Big Three's carefully cultivated market for gas guzzlers. GM and Chrysler went into bankruptcy, and an $81 billion bailout left the US government as the majority owner of GM and the UAW and Fiat as the principal owners of Chrysler.

Under the Obama administration's rescue plan, the auto companies were supposed to "green" their products. But in fact they continued to oppose climate protection policies and to promote high-pollution, low-mileage trucks and SUVs. Indeed, as recently as July 2023 the auto industry's largest lobbying organization came out against the Biden administration's proposed rule to ensure that two-thirds of new passenger cars sold in the United States are all-electric by 2032.

Biden's Industrial Policy



U.S. Rep. Alexandria Ocasio-Cortez talks about the Green New Deal in February 2019. Photo credit: Senate Democrats, Wikimedia Commons, CC BY 2.0.

Late in 2018, the youth climate Sunrise Movement occupied the office of likely Democratic House Majority Leader Nancy Pelosi; newly elected Rep. Alexandria Ocasio-Cortez joined them to propose a resolution for a Green New Deal. It called for "a new national, social, industrial, and economic mobilization on a scale not seen since World War II and the New Deal." The Green New Deal would produce jobs and strengthen America's economy by accelerating the transition from fossil fuels to clean, renewable energy. It would generate 100% of the nation's electricity from clean, renewable sources within the next 10 years; upgrade the nation's energy grid, buildings, and transportation infrastructure; increase energy efficiency; invest in green technology research and development; and provide training for jobs in the new green economy. A poll shortly after found that 40% of registered voters "strongly support" and 41% "somewhat support" the concepts behind a Green New Deal.

Faced with the overwhelming support for the Green New Deal, the presidential campaign of Joe Biden proposed a "Build Back Better" program that initially incorporated much of the program of the Green New Deal. It explicitly eschewed the principles of neoliberalism and advocated instead the long-disparaged idea of "industrial policy" – essentially, government selection of economic sectors to encourage with subsidies and technical support. While its programs were touted as means of climate protection, some of the sectors most heavily subsidized when it was implemented, such as carbon capture, hydrogen production, and nuclear energy, are questionable to say the least as means to protect the climate.

Biden's three major economic bills, the American Rescue, Bipartisan Infrastructure, and Inflation Reduction Acts, proposed to provide trillions of dollars over a decade to incentivize domestic production in targeted industries, notably the auto industry. Rather than restructuring the industry like the Obama program, these plans were largely limited to providing subsidies to auto companies to expand EV production. They were justified in part as a stimulus to the creation of a "green" economy that would reduce GHG pollution, but in large part as a means of containing the challenge of Chinese Greentech advances.

US auto companies were happy to accept these federal subsidies, but they were also happy to evade their carbon-reduction purposes. Auto companies gave surface compliance to federal pressure to reduce carbon pollution, but in reality they continued to promote highly profitable but high-emission SUVs and light trucks and drag their feet on shifting to EVs. The Biden administration policies stimulated an expansion of EV and battery production in the US. But the new plants and infrastructure were not primarily created by US companies but were rather the product of joint ventures with foreign (mostly Asian) companies with far superior technology.

The Greentech Cold War



US-owned factories still import the bulk of their solar cells from Chinese-owned factories in Southeast Asia. Photo credit: American Public Power Association on Unsplash.

Many of these Greentech investments and joint ventures were in fact Chinese. Indeed, according to a 2025 database, the US had more than $14 billion in Chinese pledged overseas green manufacturing investment, the fourth highest country in the world. Many of China's leading solar manufacturers set up assembly factories in the United States. In 2024, for example, Illuminate USA – a joint venture between China's LONGi and Invenergy, the largest private renewables developer

in the United States – began assembling panels at its 5GW factory in Ohio. On one count, Chinese-owned factories in the US were expected to have 20GW of solar capacity in 2025 – enough to meet about half of annual US demand. Battery manufacturing also attracted sizable Chinese investments. For example, a joint venture called Amplify Cell Technologies featuring EVE Energy, China's third-largest battery maker, broke ground on a US$2–3 billion factory for electric truck batteries in Mississippi.

The Biden administration tried to halt the "threats" of Chinese advances in solar and EV technology. In May 2024, it announced tariffs specifically targeting green products, including lithium-ion batteries, critical minerals, and solar cells. It quadrupled duties on electric vehicles to 100%. It also released a "Foreign Entity of Concern" ruling preventing vehicle manufacturers from getting IRA tax credits if any company in their battery supply chain has 25 percent or more of its equity, voting rights, or board seats owned by a Chinese government-linked company.

This was no simple trade war between two countries, however. As an article on "The Great Green Wall" in *Phenomenal World* put it, "the business model of the entire industry is shifting." Firms are "no longer competing for dominance on the level of vehicle technology," but for "the entire ecosystem." As a result of globalization, these "ecosystems" are normally transnational. So rather than classic economic nationalist protection of national industries, this "trade war" became an attempt by both sides to control fragmented global economic networks. As "The Great Green Wall" put it,

> "Biden's intention is to stave off the Chinese and stimulate a domestic and friendshored buildout of the EV supply chain, stretching from mines to the factory floor. Side deals with friendly governments have been made; Canada and Australia have both been deemed eligible for Defense Production Act support for their battery metals. After their howls of outrage, Europeans, Japanese, and Koreans received a leased vehicle exemption meaning that the "made in America" rules don't apply to them, and their firms' vehicles could still qualify for subsidies if they were leased rather than bought."

After the exemption was finalized in December 2022, EV imports from Korea, Japan, and Germany surged.

US EV and battery production have been based on acquiring non-US technology through joint ventures, most of them in the US South. Foreign direct investment included Hyundai and Rivian in Georgia, Toyota in North Carolina, Tesla in Texas, BMW in South Carolina, and Mercedes-Benz in Alabama. Indeed, US automakers were even licensing superior EV technology from Chinese firms like BYD and CATL.

> "Ford (in Michigan) and Tesla (in Nevada) are partnering with CATL to make batteries. CATL says that it has structured its licensing deal with Ford so that it is compliant with "foreign entity of concern" rules. For its part, Tesla already uses BYD cells in Germany; Ford and GM use BYD batteries."

Just as the impact of climate change was becoming devastating and ubiquitous, US climate policy was being turned into a weapon of geopolitical struggle. This was made clear in an interview with John Podesta, senior adviser to Joe Biden on international climate policy. Podesta praised the huge expansion of US oil and gas production: "The US is now the number one producer of oil and gas in the world, the number one exporter of natural gas, and that's a good thing." He then added, "The science is clear, we've got to transition away and begin to replace those resources with both zero carbon electricity and renewable resources." If George Orwell came back to E arth, he might proclaim, "Fossil fuels are climate protection."

Podesta also illustrated the way production of "green goods" was being redefined as an issue of national security. The US had recently slapped a 100% tariff on electric vehicles and other "green" products from China. After accusing China of deliberately overproducing green goods, Podesta said:

"The economic security of the US and [its commitments to cut emissions] rely on the need to have an economy that is not overly dependent on a single source of supply, for critical minerals, for batteries, for other upstream green technologies. We need to diversify that supply. We're witnessing a renaissance of manufacturing in the US in the green technology space and will resist unfair trade practices that are going to undermine that investment."

Above all, the Biden administration eschewed anything that would reduce the overall production and consumption of fossil fuels. Despite lip service to climate protection, they regarded it as a "good thing" that the US was "the number one producer of oil and gas in the world" and "the number one exporter of natural gas."

The Greentech Revolution Infiltrates America



President Biden Signs Executive Actions, January 2021. Photo credit: The White House, Public Domain.

Biden's industrial policies had contradictory effects on the rise of Greentech in the US. On the one hand, the IRA and other economic legislation significantly increased production of fossil free energy, EVs, and other GHG-reducing technologies. But the Biden administration oversaw a historic growth in fossil fuel extraction and strove to protect the US and its supply chains from foreign and especially Chinese Greentech.

Nonetheless, by the end of the Biden years the global Greentech Revolution was well on its way to transforming US energy production and consumption, threatening to leave fossil fuel industries as "stranded assets." In early 2025, just as the Trump administration was coming into office, the US hit a new record low for fossil fuels in the electricity mix as solar and wind reached a record high. In March 2025, for the first time ever, fossil fuels accounted for less than half of electricity generated in the US. The impact on climate-destroying GHG emissions was clear: Since coal generation peaked in 2007, there had been a 68% fall in coal emissions and a 32% reduction in total power sector emissions. In the one year between March 2024 and March 2025, US solar power increased a "staggering" 37%. Wind power increased by 12%. Over that year fossil fuel generation fell by 2.5%.

The impending transformation was clear in consumption as well as production. In 2024, electrified vehicles made up 20% of all new car sales in the US, with fully electric vehicles comprising 9%. Heat pumps rose to 57% of new space heating installations.

The Greentech Revolution opened the possibility for a "Greentech New Deal." It made climate-protecting production and consumption far cheaper than continued fossil fuel use. It made possible the rapid reduction of greenhouse gas emissions and thereby the significant slowing down of climate change. It opened the way to good green jobs for all. And it undermined the wealth and power of fossil fuel companies and countries, shifting the balance of power worldwide toward democratic governance.

Enter Donald Trump.

Chapter 5: Trump's Anti-Greentech Counter-Revolution

From the day of his inauguration until long after the closing of the Strait of Hormuz, President Donald Trump and his fossil fuel supporters have conducted an unrelenting war against the Greentech revolution and fossil free energy.



President Trump signed the "One Big Beautiful Bill" (OBBBA) into law on July 4, 2025. The law rolls back many parts of the 2022 Inflation Reduction Act by ending tax credits for wind and solar energy, removing incentives for electric vehicles and home energy efficiency, and increasing support for fossil fuels, nuclear energy, and traditional agriculture. Photo credit: The White House, Public Domain.

The Greentech revolution includes ways of producing energy like solar and wind power; ways of distributing it in time and space like energy storage and energy grids; and ways of using it like electric vehicles (EVs) and carbon- neutral buildings. The Greentech revolution is a dagger pointed at the heart of the fossil fuel industry and the political, social, and economic ecosystem in which it is embedded. Donald Trump, MAGA, and the fossil fuel industry are conducting a systematic counter-revolution to halt and destroy the Greentech revolution in all its forms.

The roots of opposition to climate protection and fossil free energy in particular run deep. The fossil fuel industry has spent large sums trying to debunk the reality of climate change and fossil fuel burning as its leading cause. Political forces – left, right, and center — have long seen the expansion of fossil fuel extraction and burning as a key to prosperity and national power. With the rise of fascist-style movements, parties, and governments around the world, denial of climate change and attacks on climate protection became ubiquitous, promulgated by forces far beyond the fossil fuel interests. Trump's anti-Greentech campaign is backed by an army of economic and ideological allies who are attempting to block the Greentech revolution at every level, from municipalities and states to corporations and the public mind.

While Donald Trump vacillates on many fronts, his personal climate denialism and hostility to fossil free energy have been consistent for much of his career. In his first term, Donald Trump withdrew the US from the Paris climate change agreement; authorized leasing federal land for new coal mines; unblocked nearly the entire American continental shelf for offshore drilling; and opened the Arctic National Wildlife Refuge and national monuments such as Bears Ears in Utah to fossil fuel extraction. By the end of 2018, Trump had eliminated 76 environmental regulations, most related to climate.

The second Trump administration represented a new phase in the attack on climate safety and fossil free energy. Of course, like most presidents before him, Trump is trying to increase fossil fuel extraction and burning. But beyond that he is trying to restrict and, to the extent possible, abolish the Greentech industry. Trump portrays his energy policy as a search for energy dominance for the US. But the facts belie that claim. In fact, Trump's efforts to destroy Greentech energy are systematically reducing America's energy resources and thereby decreasing US power.

Trump's intent is not primarily to augment US power, but to reverse the Greentech revolution and the global transition to fossil-free energy. It is first and foremost devoted to eliminating the existential threat that the Greentech revolution poses to the fossil fuel industry and the entire economic, political, and social ecosystem that depends on it and on which it depends. If the Greentech revolution is a dagger pointed at their heart, then it is a matter of survival for these forces to attempt in turn to stab it to death. That is the attempt we are seeing from MAGA, the Trump administration, and their allies.



(Left to Right) Chris Wright, U.S. Secretary of Energy (Photo credit: Donica Payne, United States Department of Energy, Public Domain); Jessica Kramer, head of the EPA's Office of Water (Photo credit: Congress.gov, Public Domain); Audrey Robertson, head of the Department of Energy's Office of Energy Efficiency and Renewable Energy (Photo credit: Energy.gov, Public Domain)

While Trump often seems to be flying wild, it would be a mistake to think that his administration doesn't know what it is doing. Its key energy and climate-related positions are held by top fossil fuel executives and lobbyists who are well aware

of the Greentech threat to their industry. Trump's energy secretary Chris Wright is a longtime fossil fuel executive and a former director of an oil-industry lobbying group. Jessica Kramer, head of the EPA's Office of Water, previously represented major energy companies, mining companies, and a water trade group working against regulations under the Clean Water Act. Audrey Robertson, head of the Department of Energy's Office of Energy Efficiency and Renewable Energy, was the co-founder of fracking company Franklin Mountain Energy and served on the board of three other fossil fuel companies, including Liberty Energy, founded by Energy Secretary Chris Wright. As Matthew Davis of the League of Conservation Voters put it, "Nominating another oil and gas executive continues the Trump administration's actions to effectively ban clean energy like wind and solar, and advance dirty energy only policies across the board."

Smashing Greentech Energy Production

On day one of his presidency, Trump issued an Executive Order freezing unspent funds from the Inflation Reduction Act and Infrastructure Investment and Jobs Act. It aimed to halt every form of Greentech, from production of solar and wind energy to domestic manufacture of EVs. In February 2025, the Army Corps of Engineers halted approval of renewable energy projects on private land; out of about 11,000 pending permits it singled out the 168 that focused on renewable energy. In March, Trump signed an executive order rescinding a Biden-era proclamation permitting the Department of Energy to fund production of renewable technologies through the Defense Production Act.

There followed a series of actions specifically designed to block solar and wind energy production. The Treasury Department issued new guidance limiting wind and solar energy projects' eligibility for federal tax credits. Then the Interior Department issued a new "project density" policy requiring wind and solar energy projects on federal land to match the energy output per acre of fossil fuels, disqualifying many renewable projects from receiving permits. In June, Trump signed an executive order directing the Treasury to severely restrict the eligibility of wind and solar projects to qualify for tax credits. According to Bloomberg NEF, the removal of federal subsidies means that over the next five years new wind energy will be 50% lower and new solar energy 23% lower than previously projected.

The attack on Greentech energy mobilized departments across the government and obscure opportunities for bureaucratic obstruction. On August 7, 2025 the *New York Times* reported,

> "The Trump administration has sharply escalated its attacks on wind and solar power in recent days, issuing a barrage of policies that could halt the construction of renewable energy projects on public and private lands across the country. The Interior Department is now requiring dozens of formerly routine consultations and approvals for wind and solar projects to undergo new layers of political review by the interior secretary's office, a policy that is causing significant permitting delays. The agency is also opening investigations into bird deaths caused by wind farms and withdrawing millions of acres of federal waters previously available for leasing by offshore wind companies.
>
> At the same time, the Transportation Department is recommending minimum setback requirements for wind farms near federal highways and railroads, requiring them to be placed 1.2 miles away. And it ordered the Federal Aviation Administration to re-evaluate whether wind farms pose a danger to aviation, a potentially momentous step since nearly every wind farm in the country requires height clearance approvals from the agency. Taken together, the policies amount to a far-reaching crackdown on wind and solar power."

Bureaucratic obstruction has become ubiquitous for solar projects. Late in 2025, the Solar Energy Industries Association (SEIA) revealed that more than 500 solar projects in the pipeline across the country are in danger of delays or cancellation "as a result of political attacks." One planned solar facility on private land in the Upper Midwest is currently delayed because federal agencies have halted all discussions over a needed water permit. Another large solar farm on private land in the West is being held up because it must now undergo three layers of political review.

Donald Trump's well-known personal antagonism to wind power goes back to the time he unsuccessfully tried to stop an offshore wind farm from being built in view of one of his Scottish golf courses. On a recent trip to Scotland, he called wind turbines "ugly monsters" that "destroy the beauty of your fields, your plains and your waterways." On inauguration day, he issued a sweeping executive order halting all leasing for new wind farms on federal lands and waters. On July 30, the Interior Department revoked over 3.5 million acres of federal waters previously designated for offshore wind development, effectively eliminating federal offshore wind leasing. Then the Trump administration ordered a halt to Revolution Wind, a nearly-completed wind farm off the coast of Rhode Island.

But that was just a love tap. Just before Christmas, the Trump administration announced that it would "pause" leases for five East Coast wind farms, "essentially gutting the country's nascent offshore wind industry." Together the projects were expected to power more than 2.5 million homes and businesses across the Eastern United States. The reason given was national security concerns, but those concerns were never stated. Secretary of the Interior Doug Burgum said in a statement that "the prime duty of the United States government is to protect the American people." He said the decision "addresses emerging national security risks" as well as "vulnerabilities created by large-scale offshore wind projects with proximity near our East Coast population centers." Nobel-prize-winning economist Paul Krugman described Trump's wind policy as "an effort to shut down 10 percent of U.S. electricity production — even as electricity prices are soaring."

The overall objective of the Trump administration is clear – to reverse the Greentech revolution. As the *New York Times* summed up with considerable understatement, "Instead of simply lifting restrictions on fossil-fuel development and removing subsidies for renewable energy, the Trump administration is creating new roadblocks for wind and solar projects."

Smashing Greentech Energy Consumption

Trump's attack on Greentech does not just aim to dismantle fossil free energy; it also aims to undermine the innovations that are making energy consumption greener and more efficient.

The rapid development of energy storage technology has been central to the Greentech revolution. Trump has taken direct aim at the attempt to develop a domestic battery industry in the US.

In 2024, China made 99 percent of the world's lithium phosphate cells, the kind most often used for energy storage. It also made more than 90 percent of the main battery components like cathodes and anodes and dominated the refining of raw materials like lithium and graphite. Batteries are essential not only for Greentech, but also to provide electricity for AI and to manufacture drones and other weapons of modern warfare.



CATL batteries power many electric vehicles in China and internationally. Photo Credit: Matti Blume, Wikipedia Commons, CC BY-SA 2.0.

Soon after coming into office, President Trump froze billions of dollars in Biden-era federal grants for battery manufacturing. His animus to anything he associated with Greentech was such that he lumped batteries in with electric vehicles, solar farms, wind turbines, and other clean energy technologies, notwithstanding their critical role in both military and industrial production. He boasted that by ending the "Green New Scam" his budget cancelled over $15 billion in Infrastructure Investment and Jobs Act "Green New Deal" funds. That included ending "taxpayer handouts to electric vehicle and battery makers" and canceling $6 billion in Infrastructure Investment and Jobs Act funds for "wasteful and ineffective EV charger programs." So much for an energy policy purported to increase America's power!

The attack on Greentech also includes blocking transmission lines for renewable energy. For example, the Department of Energy had granted a conditional loan guarantee for an $11 billion transmission line in the Midwest, known as the Grain Belt Express, which would transport electricity generated by wind farms in Kansas to more densely populated regions in Indiana and Illinois. It would have been the largest privately funded transmission line in the country's history. In July, the DOE cancelled the loan guarantee, halting the project just as it was ready to begin construction.

A particular objective of the war on Greentech consumption is the multifaceted destruction of the electric vehicle industry. Less than a month after Trump's inauguration, a Transportation Department memo ordered the suspension of $5 billion in federal funding, authorized by Congress under the National Electric Vehicle Infrastructure program, for states to build electric vehicle chargers. The budget proposed by congressional Republicans eliminated tax credits of up to $7,500 for electric vehicle buyers, clawed back money for fast chargers, and phased out subsidies for companies that set up battery factories and lithium mines. According to the New York Times, "Killing those programs would endanger more than $200 billion that auto companies, battery makers, mining companies and others have invested to create a U.S. electric vehicle supply chain not dependent on China." In December, Trump reduced the average gas mileage automakers are required to achieve by 3031 from 50 miles per gallon to 35 miles per gallon and thereby, as the *New York Times* wrote, "threw the weight of the federal government behind vehicles that burn gasoline rather than electric cars."

The attack on Greentech went into many corners of energy production and consumption. For example, agrivoltaics, which combine energy production with agriculture, is an emerging form of Greentech. The US Department of Agriculture issued a report calling for disincentivizing solar development on farms. It then announced that it will stop funding wind and solar energy on farmland.

The Trump administration has particularly targeted Green New Deal-style programs that combine Greentech and social justice goals. For example, in its first month in office, Trump's EPA halted $7 billion in contractually obligated grants for Solar For All, an Inflation Reduction Act program that delivered clean energy and lower prices to vulnerable communities. Arizona attorney general Kris Mayes, who sued to block cancellation of the program, said it would affect 900,000 low-income households nationwide; 11,000 low-income households in Arizona would face a 20% spike in energy bills. And in June the Department of Agriculture announced the termination of $148.6 million in federal grants related to environmental justice and DEI, including funds for disadvantaged farmers using conservation practices.

Trump has not limited his anti-Greentech counterrevolution to the domestic economy; he has also taken it global. Early in the administration Energy Secretary Wright told an international conference that net- zero carbon emissions was a "sinister goal" and criticized a British law to reach net zero by 2050. In his first month as president, Trump ordered tariffs against trading partners, "with severe implications for the supply chains for wind turbines, solar panels, and electric vehicles." Then Trump used tariff threats to demand that US exports be exempt from the EU law requiring that importers report on the carbon footprint of their factories overseas and pay a fine for each unit of carbon emitted before the product gets to the EU. The Trump administration demanded that the EU exempt US companies from a law that requires them to monitor and report methane emissions and to repair methane leaks in their facilities. More recently, the US has demanded that the EU cut back or repeal its new "corporate sustainability due diligence directive" which provides substantial fines for companies exporting gas to the EU unless they show they protect human rights and are cutting greenhouse gas emissions.

The Damn Fool Says "Push On"



Gas prices in Sonoma, California April 7 2026. Photo credit: Sarah Stierch, Flickr, CC0 1.0.

Even as Trump's war on Iran initiated the most severe energy crisis in world history, he continued his war on fossil free energy well into 2026. Consider these examples from April alone:

- Trump released his 2027 budget request proposing tens of billions of dollars in cuts to energy and environmental programs, including everything from electric vehicle chargers to prosecution of environmental crimes. At the same time, he proposed increased funding for oil and gas production, mining, manufacturing, and AI

development. A White House fact sheet titled "Ending the New Green Scam" said, "President Trump is committed to eliminating funding for the globalist climate agenda while unleashing American energy production."

- When several federal judges overruled Trump's blockage of offshore wind farms, Trump did the almost unimaginable and paid roughly $1.8 billion to companies to abandon leases for four offshore wind farms in the Atlantic and Pacific Oceans.
- The US "Department of War" began blocking more than 150 onshore wind farms across the United States by delaying military reviews that were once considered routine. According to Jason Grumet, chief executive of the American Clean Power Association, "The Department of War is currently making it almost impossible to build a new wind project in the United States." Trump had stated in January 2025 that "My goal is to not let any windmill be built."
- And Donald Trump released a series of memos that doubled down on his support of increased domestic fossil fuel production for purported "defense readiness." The memos said US-based oil, coal, and natural gas production must expand "to avert an industrial resource or critical technology item shortfall that would severely impair national defense capability." Invoking the Defense Production Act, the memos authorized "making necessary purchases, commitments, and financial instruments to enable these projects."

The Greentech revolution can provide enormous benefits to the American people. The US system of fossil fuel energy production and consumption is, conversely, a dead man walking. Trump, MAGA, and the fossil fuel industry are making extraordinary efforts to keep fossil fuels alive by destroying all Greentech alternatives. But this fossil fuel counter-revolution is bound to fail.

Chapter 6: Irresistible Greentech Revolution Meets Immovable Trump Counter-Revolution

Donald Trump is conducting a full spectrum counter-revolution against the Greentech revolution that is transforming energy production and consumption worldwide. He has managed to significantly impede the onward march of Greentech in the US, but Greentech is marching on nonetheless.

In the midst of Trump's assault, the Greentech revolution in America is churning – both stopped in its tracks and driving forward.

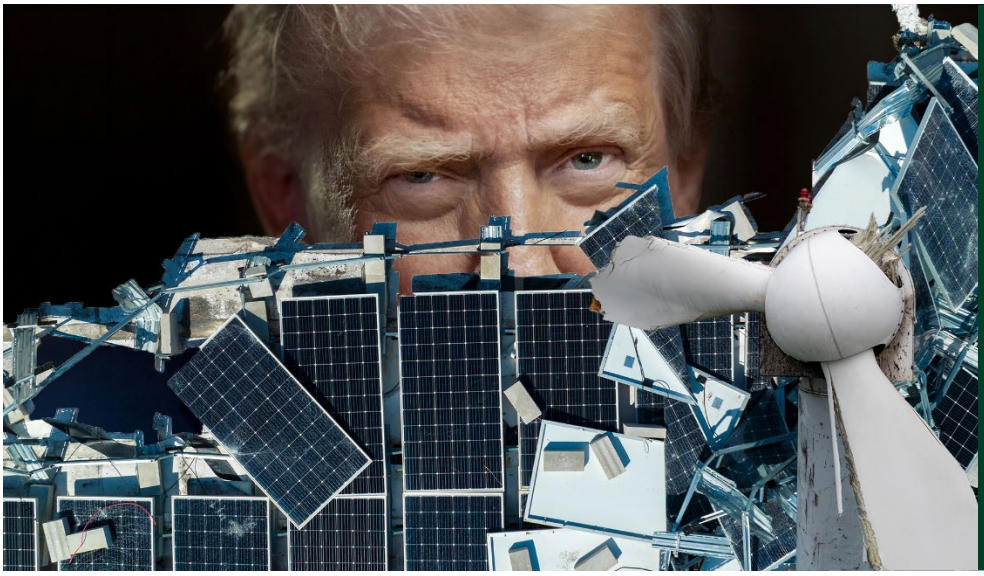
Climate journalist and musician Jael Holzman recently took a "cross-country rock n' roll tour" with her band Ekko Astral. She observed:

> "Driving across the country with my band, I saw solar and wind projects in Wisconsin, Kansas, Arizona, and Idaho. One drive from Austin, Texas to Rozwell, New Mexico, sent me through a dizzying maze of wind farms in a western portion of the Lone Star State that surrounded my vehicle on all sides with spinning blades and

transmission lines — and fracking rigs, because it was Texas. It felt like some sort of twisted, magnificent energy wonk video game."

But she also noted:

"I drove through open fields and farmland in the Midwest and the Great Plains, including places where building solar or wind is banned outright. I drove straight through the part of central Idaho where Lava Ridge, once the largest wind farm in the country, would have been built this year if not for Donald Trump."



Collage featuring a photo of Donald Trump (Trump's second presidential portrait, taken in June 2025 by Daniel Torok, The White House, Public Domain) and an aerial view of broken solar panels on a rooftop (Envato, Bilanol)

First, the bad news

Trump's Greentech counter-revolution has succeeded in making many corporations and governments cut back or abandon climate goals and policies. The consequences are catastrophic for the climate – and for the future of the American people.

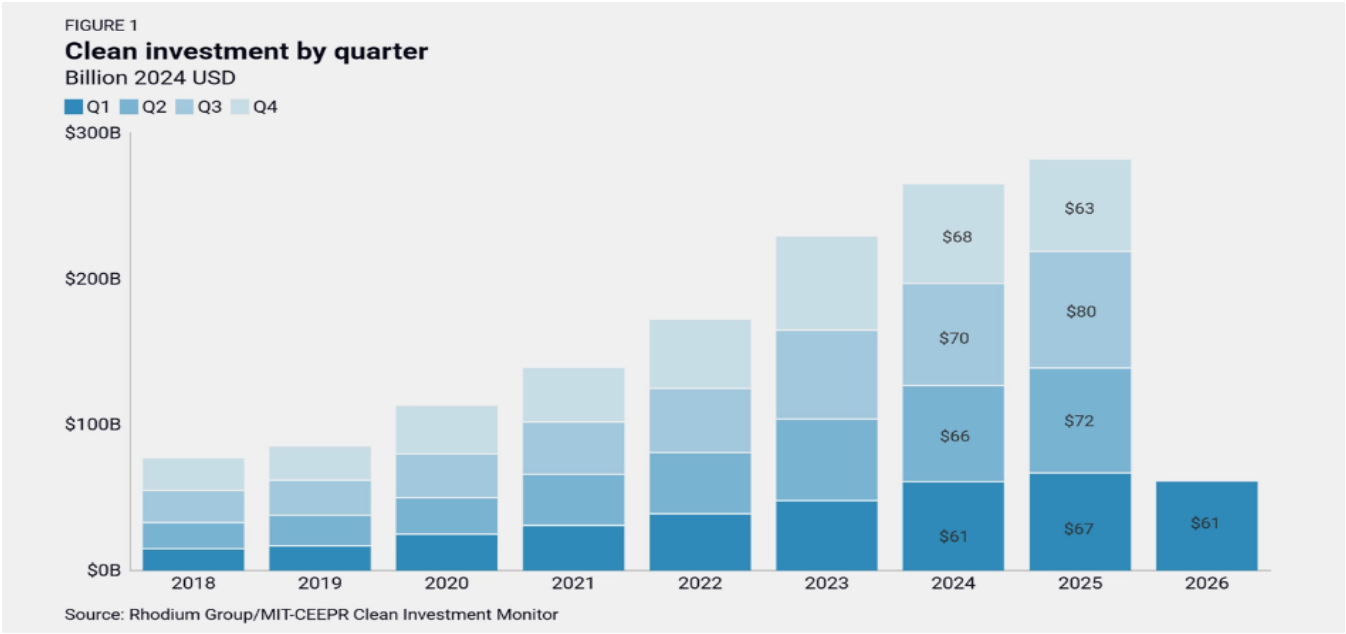
- A week before the 2024 election, Idaho's largest electric utility struck a 35-year deal to buy power from the Jackalope Wind project that would span an area the size of Chicago, with hundreds of wind turbines generating clean electricity by 2027. But President Trump's Interior Department quickly stalled Jackalope's environmental review. In September, the Idaho utility finally canceled its contracts with Jackalope Wind, citing "uncertainties related to the federal permitting process." Jackalope is only one of more than 60 large wind and solar farms that are being blocked on federal lands. According to the Solar Energy Industries Association, 73,000 megawatts of solar projects on land are currently at risk from political interference due to the Trump administration's "blockade."
- After the tax credit for buying an EV was allowed to expire at the end of September, sales of EVs plummeted by about 46 percent. In 2025 as a whole, American businesses and households invested $91 billion in zero emission vehicles, a 5% decrease from the previous year. Ford took a $19.5 billion loss from abandoning a planned battery factory and canceled its F-150 EV. In the face of the global shift to EVs, Big Three's share of the

global auto market has fallen from nearly 30 percent in 2000 to about 12 percent today, while China's share has risen from 2 percent to 42 percent.

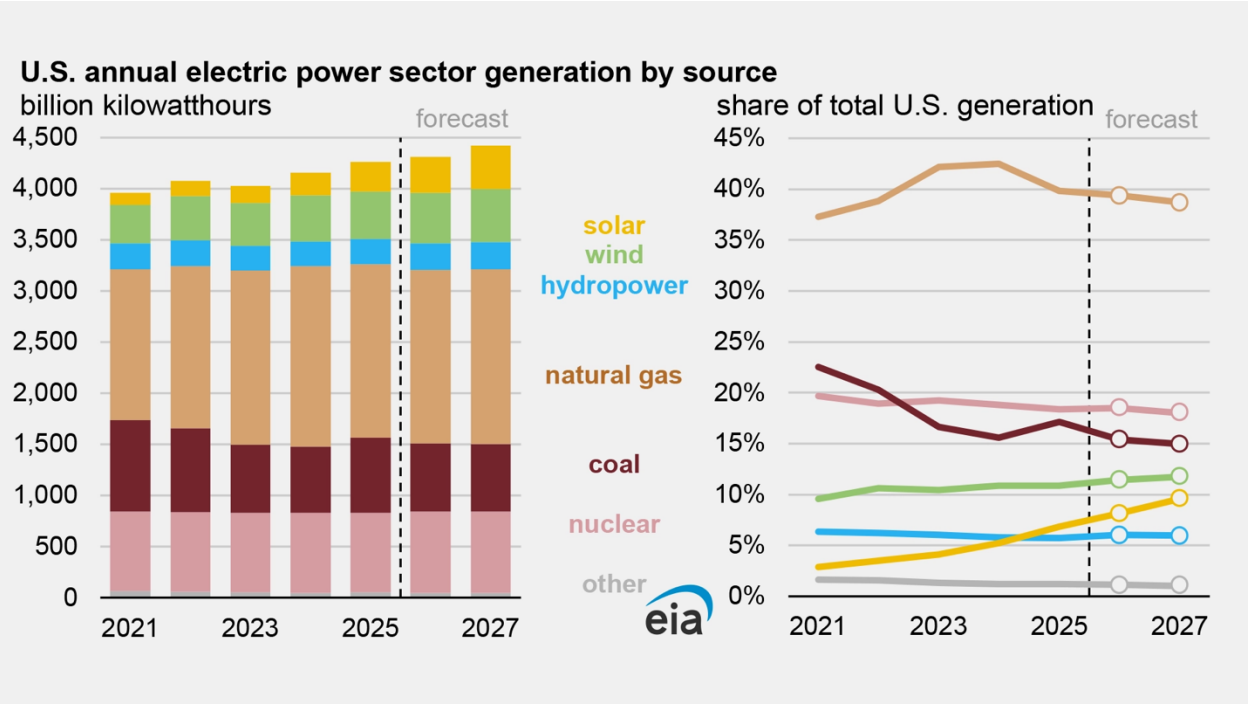
- According to the Rhodium Group's Clean Investment Monitor, the pipeline of new clean energy and transportation manufacturing investment—measured by new announcements in manufacturing projects—totaled $44 billion over the past two years, down by 70% compared to $149 billion during the previous two years. In the first quarter of 2026, clean energy and transportation investment in the United States totaled $61 billion, a 3% decline from Q4 2025.
- The impacts of Trump's cuts can be felt in the smallest and most impoverished communities. Solar Holler, a solar developer and installation company with 105 employees across Kentucky, West Virginia, Ohio and Virginia, had been growing 20 to 30% annually. Solar provided 70% of the company's business. But residential solar tax incentives were cut off under Trump's big, beautiful budget. The company's growth forecast for 2026 is down from 30% to "roughly flat." Appalachian Voices, a non-profit working with local communities, was awarded a half-million-dollar EPA grant to help five former coal communities in Virginia. The grant was summarily terminated by Elon Musk's Doge.

While the full impact of Trump's policies is just beginning to be felt, they are already pushing back the forward march of the Greentech revolution. For example, late in 2025 the International Energy Agency (IEA) nearly halved its forecast of renewable energy growth in the United States, citing the end of tax incentives, new import restrictions, the suspension of new offshore wind leasing, and restricting the permitting of onshore wind and solar PV projects on federal land.

Tens of billions of dollars of manufacturing projects to build solar panels, batteries, charging stations and other clean technologies have already been canceled, with hundreds of billions of dollars of additional announced investments imperiled. According to the Princeton University-led REPEAT Project, the rollback of Biden-era climate regulations will cause an estimated 7.6 billion tons of additional greenhouse gas emissions to be released in the coming decade, as much as 150 million gas-powered cars would emit in that same time.



The Greentech Revolution: Bloodied but Unbowed



Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, January 2026

Despite Trump's efforts to gut fossil free energy, during his first year in office solar generation rose by 83 TWh (+27%), meeting 61% of the 135 TWh rise in electricity demand. By mid-year, renewables generated more than half of US electricity for the first month on record. Even without subsidies, renewables remain the most cost-competitive form of new power generation.

In a report posted on January 16, the US Energy Information Agency said, "We expect the combined share of generation from solar power and wind power to rise from about 18% in 2025 to about 21% in 2027." Utility-scale solar is the fastest-growing source of electricity generation in the United States, increasing from 290 BkWh in 2025 to 424 BkWh by 2027." Almost 70 gigawatts (GW) of new solar generating capacity projects are scheduled to come online in 2026 and 2027, "a 49% increase in U.S. solar operating capacity compared with the end of 2025." "The three main dispatchable sources of electricity generation (natural gas, coal, and nuclear) accounted for 75% of total generation in 2025, but we expect the share of generation from these sources will fall to about 72% in 2027."

In 2025, $278 billion was invested across the U.S. in the manufacture and deployment of clean energy, clean vehicles, building electrification, and carbon management technology – up 5% from 2024. This despite an 11% decrease in the fourth quarter relative to the same period in 2024. Investment to decarbonize energy and industrial production over 2024-5 was up 35% compared to the prior two years. Investment in emerging climate technologies in 2024-25 —clean hydrogen, sustainable aviation fuels, carbon management and new approaches to decarbonizing the production of cement, iron, steel, pulp, and paper— was 53% higher than in the previous two years. In the past two years, companies have announced a total of $347 billion in new investments in clean energy production and industrial decarbonization projects, a 16% increase compared to the previous two-year period.

Worldwide, the blocking of the Straits of Hormuz and the subsequent crisis in the cost and availability of fossil fuel energy has radically accelerated the Greentech revolution, with countries around the world scrambling to expand their fossil free energy production. Ironically, Trump's petro-war on Iran is radically accelerating the very Greentech revolution he is attempting to destroy.

The Greentech revolution is proceeding over, under, around, and through Trump's counterrevolution. Greentech is an irresistible force; it may not immediately overcome the immovable object of Trump's obstruction, but it is already circumventing and eroding it.

Chapter 7:
Greentech New Deals in the Cities

While President Trump has repeatedly declared the Green New Deal dead, Green New Deal-type programs are burgeoning at a sub-national level. These initiatives are facilitated by the advent of new technologies that have enormously improved fossil free energy production and use and made them far cheaper. This chapter takes a look at Greentech New Deal initiatives in American cities.



Solar panels. Photo credit: ivankmit, Envato

In Trump's America the Greentech revolution is being waged from below.

Although Trump's attacks have slowed the advance of fossil-free technologies in the US, they have not prevented communities, cities, and states from creating their own Greentech New Deals. They are taking advantage of the

enormous reduction in the cost of renewable energy and of technologies that use it despite Trump's attempts to obliterate them.

Alongside the widespread pro-democracy resistance to Trump and MAGA, there is a constructive program being developed and implemented from below, utilizing the Greentech revolution to make Green New Deals practical and affordable. Greentech and climate protection are at its core. But it also includes the full range of pro-people, pro-social programs represented by the Green New Deal.

What does the Greentech revolution look like on the ground in the US in the Trump era? Much of the action around Greentech is occurring at a local level, both in municipal and county governments and in civil society. This chapter will describe examples of Greentech-enabled programs in US cities and their communities in Trump's first year-and-a-half in office to give a sense of their breadth and diversity. The next chapter will review such initiatives in the states.

Back in 2007, Xcel Energy won backing from the governor of Minnesota for a gas power plant in Becker, near Minneapolis, designed to replace coal-fired generators scheduled for shutdown in the mid-2020s. But clean energy advocates campaigned for better and cheaper alternatives, and regulators eventually baulked at the $1 billion price tag. Xcel gave up on the gas plant plan and instead proposed the Sherco Energy Hub, a 710-megawatt solar facility which includes a 600-megawatt storage system, the largest battery energy storage system in the Midwest. An Xcel spokesperson said, "Batteries help us store energy when it's inexpensive to produce and dispatch it when needed, allowing us to continue delivering reliable electricity to customers while keeping bills low." The site will also provide grazing for nearly 2,000 sheep, reducing mowing costs while also letting local sheep farmers expand their herds. Xcel also announced plans to close all its remaining coal fired plants in the region. The Sherco solar plant will start producing electricity in 2026.

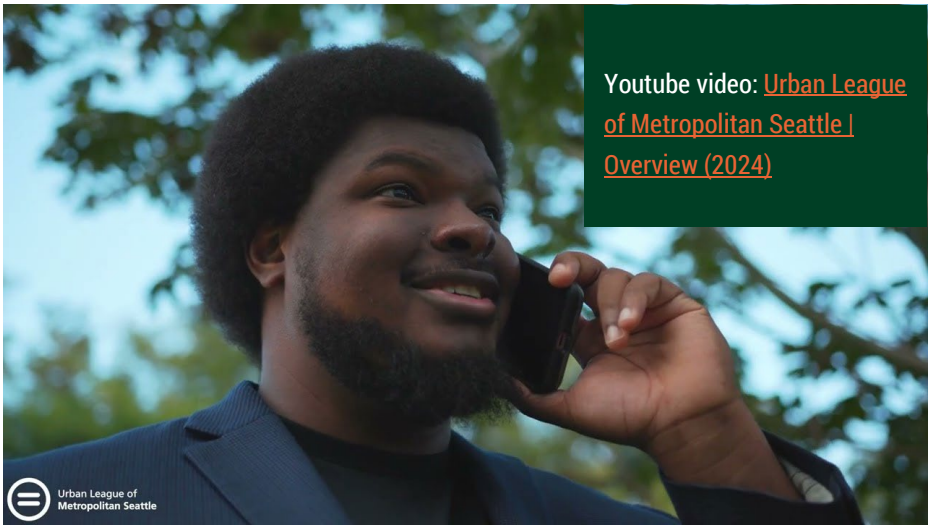
Sherco shows how Greentech's reduction in the cost of energy and facilitation of battery storage opens the door for communities and governments to demand that fossil fuels be replaced by renewable energy. As climate journalist Tina Casey commented on *CleanTechnica*, the Sherco facility "demonstrates how community efforts and basic economics can push the needle on the energy transition."

Manchester Public Schools is a suburban school district outside of Hartford CT with 17 schools, four of which are Title I schools serving low-income communities. While the state had many solar programs, by 2020 private solar developers had concluded that Manchester would "never do a project." But in 2022, with support from the Connecticut Green Bank, solar panels were installed at 6 of Manchester's 17 public schools, adding 1.6 MW to the town's solar energy capacity. Now Manchester has three net-zero energy school buildings and is adopting cutting-edge technologies like ground source heat pumps. Manchester also has additional ongoing investments in net-zero buildings, including a new library. Solar installations are projected to save the Town of Manchester approximately $100,000 annually. Beyond financial savings, these renewable energy systems are now valuable educational tools, reportedly sparking curiosity and environmental awareness among students.

In Seattle, drayage trucks contribute significantly to air pollution, disproportionately impacting low-income communities along freight corridors in the Duwamish Valley. According to Seattle's then-mayor Bruce Harrell, "Seattle's port is the backbone of our economy, but diesel drayage trucks that transport goods are some of the Duwamish Valley neighborhoods' heaviest polluters." Seattle has now developed a Heavy Duty Electric Trucks Pilot to provide

incentives for purchasing electric drayage trucks. The program results in part from interviews conducted with drayage truck drivers who pointed out electric trucks were too expensive for them to buy. The drivers' insights helped shape a new approach that, according to the city's Office of Sustainability and Environment, "centers equity to ensure a just transition for truck drivers, particularly independent owner-operators, who are critical to our region's supply chain and who bear disproportionate environmental and economic burdens."

Funding for the program comes from Seattle's JumpStart Payroll Expense Tax on extremely high salaries. The funding was recommended by Seattle's Green New Deal Oversight Board, which develops budget and policy recommendations for environmental initiatives in partnership with communities. Said then-Mayor Harrell, "Through the Heavy Duty Electric Trucks Pilot, we're investing in the technology that will ultimately reduce emissions in frontline communities while also supporting drivers to ensure they have real opportunities in the zero-emission economy." The trucks are expected to be in operation by the end of 2026.



Youtube video: Urban League of Metropolitan Seattle | Overview (2024)

The drayage truck program is only one small component of Seattle's much broader community participation climate effort. For example, Greenspace, Seattle's Office of Sustainability & Environment, partnered with Seattle's Green New Deal Oversight Board, the Martin Luther King Jr. County Labor Council (MLK Labor), and the Urban League of Metropolitan Seattle to pilot "climate community assemblies" that included union members and workers, community members, and social justice and youth advocates to make decisions, influence government, and shape solutions. The Urban League's neighborhood-based assembly focused on climate preparedness for BIPOC and working-class community members. MLK Labor, a labor council representing more than 100,000 workers in King County, led a worker assembly focused on workplace safety, green job standards, and improving public infrastructure to be ready for extreme weather. A follow-on project will turn ideas developed by the assemblies into policies for the city. And future community assemblies will help shape Seattle's Climate Action Plan Update.

On the site of an abandoned psychiatric hospital in Southeast Washington, DC, a renewable energy project called Sycamore & Oak has just opened a "microgrid" — a self-contained system that includes energy generation and consumption. Solar panels provide electricity during daylight hours and charge batteries that continue to provide electricity during the night. The project's workforce development program trained a cohort of 10 local residents, most of whom are from Ward 8 where the project is located, for the installation. According to Jordan Taylor of GRID Alternatives, the nonprofit that provides solar installation and workforce development for the project, "Ultimately the Black-owned businesses that are supported by Sycamore & Oak get to receive lower-cost power." With fuel-based energy, "you're emitting fossil fuel pollution into the local community," which is "usually a low-income or disadvantaged community." Taylor said that improvements in building science are not only better for the environment, but more cost-

effective. These range from construction techniques to long-term energy usage over the lifetime of a building. “We can build the same structure for 90% less energy consumption. That’s both a cost-savings measure, as well as an energy efficient and ecologically friendly one.”

Community Benefit Agreements have become an important way to ensure that Greentech developments meet social needs. The once-industrial city of Worcester MA recently laid out a 51-acre manufacturing-focused GreenTech Park on a former abrasives factory site in Worcester’s Greendale neighborhood. The Worcester Business Development Corp., the City of Worcester, and representatives of organized labor signed a community benefit agreement ensuring compliance with the City’s Specialized Stretch Code, which is designed to help Worcester meet its goal of net-zero emissions by 2045. The CBA also commits the partners to compliance with the City’s Responsible Development Ordinance which ensures job opportunities for Worcester residents, people of color, women, local contractors, and apprentices. The agreement requires monthly stakeholder meetings and informational discussions with Greendale residents. Fred Taylor, president of the Worcester NAACP, business representative for Carpenters Local 336, and co-chair of the Worcester Community-Labor Coalition that helped negotiate the CBA said, “This agreement ensures responsible development that will not only create local jobs for our community members but also promote a safe working environment with good wages.” It will “increase tax revenue for the city, helping to make Worcester a better place to work and live.”

In June 2026, Montgomery County MD announced 20 clean energy and energy efficiency projects. According to the Montgomery County Executive, the initiatives will

> “support practical projects that improve energy efficiency, strengthen emergency preparedness, and create more resilient public spaces, particularly in communities that are more vulnerable during extreme weather events. These investments will lower long-term operating costs for taxpayers while helping the County make meaningful progress toward our climate goals.”

The projects have a strong Greentech element. They include solar-powered backup systems at seven recreation centers; an agrivoltaics demonstration project at the Agricultural History Farm Park; and building automation system upgrades. County official David Dise says, “We are proudly advancing Montgomery County’s climate goals through innovative green energy solutions, including microgrids and resilience hubs.”

In the Bryant community in Ann Arbor MI, a quarter of residents spend more than a third of their incomes on utilities. After years of campaigning by local energy activists, 80% of Ann Arbor voters approved a new Sustainable Energy Utility. Operating alongside the existing privately-owned utility, the SEU will purchase, install, and maintain solar panels, battery backup systems, and other fossil-free energy infrastructure in residents’ homes. Those who choose to join pay a small monthly fee – far less than they save from their free solar installation. The city will own the facilities, but residents can sell whatever electricity they don’t need themselves. The plan will pilot in Bryant and spread to other locations in the city. The SEU could also build its own microgrids, for example putting solar panels on schools to provide power during school hours and then supplying other SEU users when school is out. Derrick Miller of the nonprofit Community Action Network says, “When we started having a conversation about how to decarbonize the neighborhood about four years ago, it felt outlandish. Now, it doesn’t feel like anyone can stop us.”

Alongside the Cow Palace arena just south of San Francisco, construction has begun on the Cormorant Energy Storage Project, whose 250-megawatt capacity will make it the largest battery array in any major US urban area. It will supply energy to MCE, a community choice aggregator which purchases electricity on behalf of local residents as an alternative to for-profit utilities. The battery will bring $73 million of property tax revenue to Daly City; the developer will donate $1.5 million in community benefits.

These are only a small sample of the Greentech-facilitated programs in American cities, but they illustrate the diversity of such initiatives. They show that Greentech-facilitated programs are in place in every region of the country, in jurisdictions large and small, and in localities blue and red, exhibiting myriad forms of both energy production and energy consumption.

Such initiatives have been retarded by Trump's attempts to wipe out Greentech. They have also met resistance from local MAGA and NIMBY forces. But as these examples show, they are continuing to bloom.

These initiatives are significant for several reasons. They directly improve the lives of the people they affect and reduce the emission of climate-destroying greenhouse gases. They demonstrate concretely how climate protection, racial and economic justice, grassroots democracy, and quality of life can be combined. They show that people acting together can overcome Trump's anti-Greentech counter-revolution. And looking forward, they lay a foundation for the triumph of a Greentech New Deal once Trumpian resistance is overcome.

Chapter 8:
Greentech Revolution in the States

While Trump conducts his war against Greentech, many US states are forging ahead with energy expansion based on sun, wind, and water. Greentech's slashing of the cost of renewable energy production and use has made states turn to it not only to protect the climate but to make energy affordable for their people.



Oil Pump and Wind Turbines at Sunset. Photo credit: perutskyy, Envato.

The US federal system gives states a powerful position in energy policy. States regulate electric generation, local distribution of electricity, and infrastructure siting. They can set policy in myriad other areas from urban planning to public transit to housing that can help shape the utilization of climate-protecting Greentech.

Shortly after his inauguration, President Trump issued an executive order entitled "Protecting American Energy from State Overreach." The order describes state clean energy policies as "burdensome and ideologically motivated 'climate change' or energy policies that threaten American energy dominance and our economic and national security." The order called on the Attorney General to take action against these state laws, and she began to file lawsuits against them almost immediately. This executive order was followed by many other Trump efforts to hamstring or outlaw state climate policies, ranging from blocking California emission standards to forced reopening of shuttered coal-fired power plants.

Meanwhile, recent headlines have publicized retrenchment in state climate policies. New York state abandoned its commitment to reduce greenhouse gas emissions by 40% from 1990 levels by 2030, substituting weaker and squishier targets. California also relaxed requirements for emission reductions – although the change continues to be contested in the state legislature. In both cases energy affordability was given as a reason, although advocates of both changes acknowledged that they would not bring down energy prices any time soon. Both New York and California changes were preceded by heavy fossil fuel industry lobbying.

Such retreats register the reality that Trump's attacks are restricting the development of the Greentech New Deal. Federal defunding of climate-protecting initiatives has made them more expensive; regulatory changes and subsidies have advantaged fossil fuels; and legal attack has undermined the Greentech revolution. But these retreats should not conceal the advances the Greentech Revolution has made in US states even during the first year-and-a-half of the Trump era.

Today's Greentech advances in the states typically combine climate protection with affordability. That's possible because Greentech has made production and use of renewable energy so much cheaper – rendering fossil fuels non-competitive.

California–Two steps forward, one step back?



California's electricity is increasingly coming from solar. Photo credit: Tom Brewster Photography, Wikimedia Commons, CC BY 2.0. Data Source: US Energy Information Administration.

California, now the world's fourth largest economy, illustrates the collision of the irresistible force of the Greentech Revolution with the immovable object of the Trumpian fossil fuel counter-revolution. In recent years it has faced devastating heatwaves, droughts, storms, wildfires, and other extreme weather conditions resulting from global warming. Not surprisingly, an overwhelming proportion of Californians worry about climate change and back policies to fight it. In 2006 California passed AB 32, the Global Warming Solutions Act, which set targets for greenhouse gas emissions and established a declining limit on total emissions by the state's major polluters. Over the next twenty years California substantially raised its targets and implemented many other climate protection policies. From 2001 to 2019, California reduced its carbon emissions by 25%, leaving a typical Californian emitting only half as much as other Americans.

In 2024, California's natural gas generation fell by 8%; coal is expected to soon be eliminated entirely from its electrical supply. By the end of 2025 the state had 2.5 times more battery storage available than it did in 2022.

As soon as Trump was inaugurated president, he began a massive attack on California's climate protection efforts. For example, he attacked the state's first-in-the-nation ban on the sale of new gas-powered cars by 2035**.** The state sued to preserve the ban. In 2025 it extended the cap and trade program, renamed cap and invest, by 15 years. Then Governor Newsom, under heavy lobbying from California's oil industry, announced a new plan which offers free pollution permits worth as much as $4 billion to oil refineries and other major polluters while eliminating funding for many environmental programs. Legislative leaders refused to accept the plan and refused to fund many of Newsom's other programs until he abandoned it. In September, the legislature passed a compromise which restored nearly half-a-billion dollars of the cut funds.

Other states go Greentech



Youtube video:
NJ Gov. Mikie Sherrill marks first day signing flurry of executive orders
https://www.youtube.com/watch?v=hDqsFF_2zpM

The California climate story should not obscure what is happening in other states.

Soon after Trump's inauguration, Massachusetts Gov. Maura Healey issued an executive order that directs the state to procure 10 GW of clean energy and 5 GW of battery storage by 2035. The governor's office projects up to $10 billion in

savings for residents and businesses. Massachusetts also announced $180 million in immediate utility rate reductions. This cut residential electricity bills by up to 25 percent for two months.

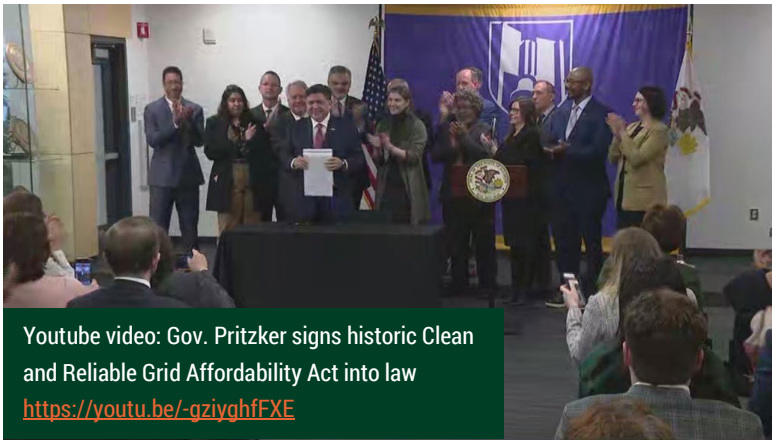
Maryland's Utility RELIEF (Reducing Energy Load Inflation for Everyday Families) Act provides $200 million from the state's Strategic Energy Investment Fund to accelerate local clean energy development and storage and provides targeted utility bill relief. An Affordable Solar Act which would add up to 4 GW of new solar capacity by 2035, promote plug-in solar, and improve grid access, is pending in the legislature.

Upon her inauguration, New Jersey Gov. Mikie Sherrill declared a state of emergency on utility costs. An executive order directed the New Jersey Board of Public Utilities to pursue rate relief by pausing new hikes and delivering residential bill credits. Another ordered rapid expansion of solar and battery storage and streamlining of the permitting process. In March, the BPU approved the expansion of the state's community solar program, adding 3 GW of new capacity, with low-income households guaranteed a discount of at least 25 percent on their bills. According to American Progress, this expansion was the largest of a state-run program in the country's history, and the program has already delivered more than $70 million in bill credits to households across the state. The governor also signed a measure that increases transmission-scale storage across the state, helping store low-cost clean energy and deploy it during peak demand to reduce price spikes and improve reliability.

In Pennsylvania, the PA EDGE (Pennsylvania Economic Development for a Growing Economy) creates tax credit programs for billions of dollars in energy and advanced manufacturing investment, including clean energy technologies. In June 2026 the Pennsylvania House put a cap on profits from utility company investments in infrastructure and eliminated nearly $1.7 billion in taxes that electricity companies now pass along to consumers as part of their bills.

In Virginia, a clean energy package includes streamlining solar siting, expanding storage connections to the grid, limiting carbon-emitting backup generators at data centers, and expanding virtual power plant programs that let utilities draw on distributed clean energy sources such as rooftop solar and home batteries.

The obstacles fall



Youtube video: Gov. Pritzker signs historic Clean and Reliable Grid Affordability Act into law https://youtu.be/-gziyghfFXE

One of the main objections to renewable energy has always been that it becomes unavailable when the sun doesn't shine or the wind doesn't blow. This objection has been largely overcome by Greentech's radical reduction in the cost of energy storage. As a result, the most recent wave of state programs has put battery storage front and center.

Illinois's Clean and Reliable Grid Affordability Act instructs the state to procure three gigawatts of new battery storage by 2030 to help stabilize electricity prices. It also includes a "storage for all" program that provides incentives for income-qualified households and businesses to install battery systems co-located with solar projects. The Illinois Power Agency expects the act to save customers $13.4 billion over two decades.

Pennsylvania is investing $22 million to help battery manufacturer Eos Energy Enterprises expand battery manufacturing operations in the Pittsburgh area. The expansion is expected to create 735 new jobs in Allegheny County. Last year the workers at Eos Energy voted to join the United Steelworkers Union. Eos also announced a plan to develop energy storage projects across Pennsylvania.

Another obstacle facing renewable energy is that the location where it is needed is not necessarily the location where it is produced. So state policies are addressing the extreme inadequacies of the electrical grid. For example, the state of Washington has established the Washington Electric Transmission Authority, a new state entity empowered to plan, site, and finance transmission infrastructure. New Mexico and Colorado have established similar authorities.

New technology doesn't always mean greater complexity. Witness the emergence of small solar systems that hang on a balcony and plug right into a wall socket. More than a million homes in Germany now have such "balcony power plants," but they are forbidden in the US. Last year the Utah legislature voted unanimously to let residents use plug-in collectors. 23 other state legislatures are now considering similar bills – the California legislature approved one in September. According to the *New York Times*, such legislation would "eliminate one of the technology's biggest barriers in the United States": homeowners or renters could install plug-in systems "without approval from their local utility."

A common complaint against large-scale solar projects is that they use up land that would otherwise be available for agriculture. However, solar projects are now actually supporting agriculture by the new techniques known as agrivoltaics. State policies are now promoting agrivoltaics. Last year, the New Jersey Board of Public Utilities launched a new dual-use pilot project to organize and accelerate agrivoltaics development in the state. The three-year pilot program calls for up to 200 megawatts of solar power, with Rutgers University applying its agrivoltaics research to develop best practices and guidelines. Connecticut, Maryland, and Virginia also have agrivoltaics programs under way.

Renewable energy projects can also contribute to improved land use by utilizing currently degraded spaces like landfills and contaminated industrial sites. An example is New Jersey's Brownfields Redevelopment Incentive Program, accompanied by a Landfill to Solar online guide for local governments and solar developers, created by the Governor's Office of Climate Action and the Green Economy. An already completed example is the Toms River project, the largest solar power plant in New Jersey and also the largest solar array on a Superfund site anywhere in the US.

Beyond the blue

The expansion of Greentech in the Trump era has by no means been limited to blue states. Some of the most extensive installations of Greentech are in red states – witness Texas. Utility-scale solar plants produced 45 terawatts from January through September 2025, up 50% from 2024 and nearly four times what they generated in 2021. Wind power also continued to climb, producing 87 terawatts through September – a 4% increase from 2024 and 36% more than in 2021. Together, wind and solar supplied more than a third of Texas' electricity in the first 9 months of 2025. Battery use is also growing. Three of the four largest US battery storage projects scheduled to open in 2026 are in Texas. Solar collection and battery storage are now being systematically combined: one dual project is adding 837 megawatts of solar power and 418 megawatts in battery energy storage capacity.

In Nevada, generally regarded as a "purple" state, a third of all energy demand is now met by solar panels. The state has the highest solar electricity generation per capita in the country, as well as the most solar-industry jobs per capita. The

goal of producing half of its electricity from renewables by 2030 is enshrined in the state's constitution. The Las Vegas region has the highest concentration of residential rooftop solar in the continental US. The city's chief sustainability officer attributes this in part to the city's easy permitting. "You're pretty much in and out of our office with a permit in 30 minutes."



Wolf Ridge Wind Farm in Muenster, Texas. Photo credit: Ben (Out with the Old, In with the New), Wikimedia Commons, CC BY-SA 2.0.

In the absence of federal support, states are reaching out to each other to create regional alliances to implement Greentech. For example, thirteen states have formed the Geothermal Power Accelerator collaboration to rapidly expand geothermal power development. Another example: The California State Legislature passed Assembly Bill 825 to begin the process of establishing a regional electricity partnership across the West. In late June, the state of Washington joined the partnership along with California and Quebec. And, after briefly withdrawing, Virginia rejoined the 11-member northeastern Regional Greenhouse Gas Initiative.

In some states like Texas, the Greentech boom is occurring without much attempt to reap its potential social benefits. But in many states the Greentech revolution is enabling a broader program for jobs and justice that embodies the principles of the Green New Deal. That in turn is laying the basis for a national Greentech New Deal to come.

Looming over recent climate politics has been the issue of energy affordability. Because Greentech has made the production and use of renewable energy so much less costly than fossil fuel energy, states have accelerated their introduction of it. But the energy cost squeeze on consumers has in some cases also led states to shortsightedly reduce investment in Greentech and unleash fossil fuels.

These dynamics are now being exacerbated by the escalation in fossil fuel prices and the threat of energy insecurity that have accompanied the Iran war. The relative expense and unreliability of fossil fuel energy is likely to accelerate Greentech in the states. States that don't want to render their economies "stranded assets" should go all out for the Greentech revolution right now.

Chapter 9: Phasing Out Fossil Folly

The Greentech revolution makes it possible to pivot rapidly away from fossil fuels. But realizing that possibility requires actually halting and reversing fossil fuel extraction and burning. President Trump is doing everything possible instead to expand such fossil folly – and to crush any efforts to restrain it. But the fight to reduce fossil fuels continues from below.



Oil well along U.S. Route 6 in Railroad Valley, Nevada, July 17, 2014. Photo credit: Famartin, Wikimedia Commons , CC BY-SA 4.0.

The previous two chapters have described how people in cities, states, and communities have been expanding fossil free energy production and reducing energy use through Greentech initiatives.

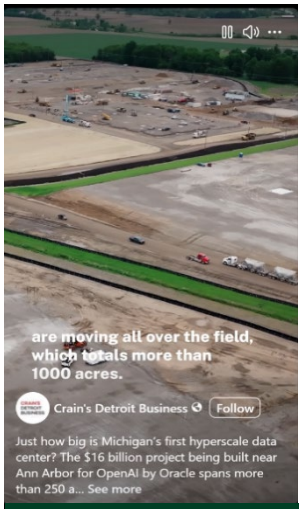
These are essential aspects of reducing climate-destroying greenhouse gas emissions, but in themselves they will not halt the destruction of the climate through the burning of fossil fuels. That requires halting new fossil fuel infrastructure and accelerating the closing of existing fossil fuel facilities. That is often referred to as a "phaseout" or "managed decline" of fossil fuels. It's often summed up in the slogan, "Leave it in the ground!"

Greentech and fossil fuels can increase at the same time – indeed, they are doing so today. But the cheapening and improvement of Greentech can have a crucial impact on fossil fuel use. For every decision on future energy use, fossil fuels are worse and renewable energy is a better deal in almost every way (unless you are a fossil fuel company). But we must make the choice not only to create more fossil free energy, but to relentlessly reduce fossil fuel extraction and burning.

Many such actions are now being taken by local and state governments and grassroots activist groups to phase out fossil fuels. Although national and global action will be necessary to eliminate fossil fuels completely, in their absence action from below is forming the tip of the climate protection spear.

However desirable a "big bang" shutdown of fossil fuel production and use might be, what is more likely is a persistent squeezing that reduces the value and profitability of fossil fuel investments. Each incremental squeeze on fossil fuel production and consumption tips the balance toward replacing them with Greentech. This chapter presents just a few examples of how this is being done at the local and state level. (The next two chapters describe another important set of examples — the movement against data centers.)

Leave it in the ground!



Facebook reel from Crain's Detroit Business

One day Ken Klovski, a resident of Lima township in rural Michigan, noticed boreholes on the farm across the road from his home. Klovski checked county records and discovered the farm had a three-year option agreement with the utility Consumers Energy. Then he found a filing with a map showing a proposed 1.4-gigawatt power plant near the farm. A town official called a public meeting where representatives of Consumer Energy denied that they had optioned the land specifically for a power plant. Klovski accused them of lying. The Lima Township Board of Trustees passed a 12-month moratorium on new power-generating facilities. A resident of a nearby town organized Neighbors United Against Noxious Consumers Energy, or NUANCE. On the group's Facebook page, he began a daily podcast "Dear Garrick," expressing the concerns of the group's 1,400 members directly to Consumers Energy CEO Garrick Rochow. Weeks later, the company issued a statement saying, "We will release the option on the land back to the property owner and withdraw our application."

Fossil fuel use can simply be banned on a compulsory timetable. The city of Los Angeles, for example, has committed to get all of its energy from fossil-free sources by 2035 – that is, to ban the use of fossil fuel energy. Shortly after Donald Trump was elected, the city halted use of all electricity produced by coal. Electricity was shut off from Utah's largest coal-fired power plant to Los Angeles. The plant is being converted to hydrogen. Then it will supply power to Los Angeles that will initially be produced from a mix of natural gas and hydrogen. According to the city's municipally owned utility, LA intends to transition to 100% green hydrogen made exclusively from water and renewable energy, ending its burning of fossil fuels.

When President Trump ordered old, highly polluting coal-fired power plants scheduled for retirement in Colorado to reopen or remain in operation, the legislature passed the "Manage Emissions from Electric Generating Units" law to halt or circumvent the order. While the state did not have the authority to directly nullify the president's order, it took multiple pathways to render it less effective. It requires more transparency on the costs incurred from running coal units past their retirement dates; directs the Public Utilities Commission to approve new resources to help the state reach its 2030 climate targets; and requires expensive modern pollution controls for any coal plants operating after 2033. According to a Sierra Club analysis, the Trump Administration's coal orders have already cost Americans over $330 million, directly affecting ratepayers and the public health of surrounding communities. The Colorado legislation keeps the state aligned with its clean energy goals by curbing coal emissions and reinforces critical retirement dates of coal-fired plants, while also directing Colorado's Air Quality Control Commission to set limits on pollutants like nitrous oxides and sulfur dioxide. Other states are also challenging Trump's coal orders. (On September 11, 2026, in a case brought by Michigan, Minnesota, and Illinois, found that The Energy Department did not have the authority to use emergency powers under federal law to block the closure of a coal-fired Michigan power plant.)

More than 1,500 institutions worldwide with over 14 trillion dollars in assets have divested from fossil fuels and others continue to join them. In May 2026 the Santa Clara CA County Board of Supervisors voted to divest its 10-billion-dollar investment pool from fossil fuel companies. The pool had already let $30 million in Chevron and Exxon bonds expire. The resolution means the investment pool will not buy any new fossil fuel company bonds to replace them, and the fund will

remain fossil free. The decision followed a joint letter from 21 community groups urging divestment. Carlos Davidson of the Pacifica Climate Committee said, "Just like with divestment from tobacco and South Africa Apartheid, by divesting we bring attention to the fact that the power of the fossil fuel industry is the single biggest obstacle to government action on climate change." Divestment from fossil fuels has become more attractive as better Greentech alternatives have become available and as fossil fuel investments increasingly risk becoming stranded assets as a result.

Litigation and legislation

State and local governments across the country have filed at least 40 lawsuits arguing that the fossil fuel industry should be held accountable for its role accelerating climate change. For example, Multnomah County, Oregon is suing Chevron and other fossil fuel companies for $50 billion for damages resulting from a deadly 2021 heat dome that brought temperatures to 116 degrees and killed 69 people. "Our case seeks to hold the defendants responsible under Oregon law for their deceptions and misrepresentations and failures to warn about the dangers of their fossil fuel products," said a lawyer for Multnomah County. The county is seeking $50 million in actual damages, $1.5 billion in future damages related to anticipated heat events, and at least $50 billion for an abatement fund to "weatherproof" the county.



Multnomah County is suing fossil fuel companies for $50B. Here's the county's argument. View Youtube video

In 2024, the Sierra Club and several community and environmental groups sued the Louisiana Department of Energy and Natural Resources, challenging the Coastal Use Permit for a liquefied natural gas (LNG) export project to construct a massive methane gas liquefaction, storage, and export terminal on the Gulf of Mexico — in wetlands that provide critical flood prevention and other vital ecological functions to local communities and the environment. The project would generate greenhouse gas emissions equivalent to operating 14 new coal-fired power plants or 13 million new gasoline powered vehicles. A Louisiana state court terminated the coastal use permit, finding state officials violated the Louisiana Constitution by issuing the Coastal Use Permit without considering its disproportionate effect on the surrounding communities of color and low-income communities, as well as the climate change impacts and cumulative impacts with other export facilities already in the area. The Sierra Club is now seeking to leverage that ruling to stall additional fossil fuel energy projects in southwest Louisiana.

In February 2025, the state of Michigan – fabled auto capital of America – filed a federal lawsuit accusing ExxonMobil, Chevron, BP, Shell, and the American Petroleum Institute of engaging in a decades-long conspiracy to block the

development of clean energy and electric vehicles in order to ensure that their fossil fuel products dominated the market. According to the complaints the defendants, acting as a "cartel," robbed consumers of energy and transportation choices in "one of the most successful antitrust conspiracies in United States history."

State legislation is taking multiple approaches to putting the squeeze on fossil fuel production and use. For example, Vermont is the first state to pass a law to charge fossil fuel companies for at least some of the damage their emissions have caused. Vermont's law, the Climate Superfund Act, is largely modeled on the national superfund law. It instructs the state treasurer and Vermont's Agency of Natural Resources to calculate what fossil fuel emissions have cost the state. The agency then determines the quantity of emissions attributable to each fossil fuel company. Each company must then pay into a recovery fund. New York has also passed climate superfund legislation requiring payments to begin in 2028; 11 other states are considering similar legislation. A slew of lawsuits is trying to block the Vermont and New York laws. In May the Trump administration sued both New York and Vermont over their superfund laws and other states over efforts to make polluters pay for harms from climate change. US Attorney General Pam Bondi alleges the laws and other planned state legal challenges are "burdensome and ideologically motivated" and "threaten American energy independence and our country's economic and national security."

Other legislation to put the screws on utilities is legion; the environmental research group Climate XChange tracked 63 bills in 25 states that cover performance-based pay structures for utilities, limits on utility profits and executive pay, prohibitions on using customer rates for political activity, and expanded price transparency requirements. Hawaii's SB1396 establishes a "green fee" for transient accommodations to fund response to climate change-related disasters and environmental improvement efforts. The green fee applies to hotels, short-term vacation rentals, timeshares, cruise ships, and similar short-term accommodations.

Such state and local initiatives are far from enough to force the fossil fuel industry to transition to clean Greentech energy. But they contribute to the squeeze on the industry's value and profits that is already resulting from Greentech competition. And they help lay the groundwork for a future transition from – and abolition of – fossil fuel extraction and use.

Chapter 10:
Will Data Centers Derail the Greentech Revolution?

The startling growth of hyperscale data centers for processing artificial intelligence threatens to exacerbate the climate crisis, the jobs crisis, and the affordability crisis. This chapter presents an overview of the data center explosion and its likely effects. The next chapter examines the emerging "Data Center Rebellion" and how it can become a major force promoting a Greentech New Deal.



Aerial view of data centers intermingled with other commercial buildings in Loudoun County, near Ashburn, November 26th, 2025. Photo credit: Theodore Christopher, Wikipedia Commons, CC0 1.0 Public Domain.

Data centers are large warehouse-like structures filled with digital electronics that process artificial intelligence (AI). According to the International Energy Agency, "conventional" data centers can use between 10 and 25 megawatts of electricity while "a hyperscale, AI-focused" data center can use 100 megawatts or more. Hyperscale data centers can encompass more than a million square feet. Today there are 4,149 data centers in the US, with 2,788 more under construction or planned. Data center construction rose more than 34 percent between March 2025 and March 2026.

The explosive growth of data centers is already having a significant impact on the energy system. It will have an even greater impact on the transition from climate-destroying fossil fuel energy to climate-protecting Greentech energy in the future. So far, those effects are overwhelmingly negative.

The future of data centers, and AI more broadly, is filled with unknown unknowns. AI is pretty clearly both a technological revolution that will change the way we do things in many spheres of life – but also a technological bubble based on extreme claims that are unproven hype at best. Google CEO Sundar Pichai says artificial intelligence is "more profound than, I dunno, electricity or fire."

Decisions and investments based on such dubious claims are speculative at best. For example, Chinese AI, with its far cheaper energy system and its cheaper and less energy-intensive strategy, is widely seen as less than a year behind the AI frontier. The AI boom depends on a debt bubble similar to many in the past marked by colossal overinvestment followed by collapse. Tech giants are using other people's money to make huge investments in hyperscale data centers that have not yet shown they can be even marginally profitable. All of this is developing in the context of Polycrisis 2.0, with its unlimited warfare, unlimited arms races, energy crises, climate crises, galloping inequality, destruction of democracy, and overall prevalence of folly. Finally, the AI bubble is largely driven by the colossal egos of "hyperscalers" like Elon Musk whose megalomania and struggles with each other for dominance will have unpredictable ramifications.

Data centers and jobs



Anti-data-center sentiment in rural Kansas neighborhood, May 24th, 2026. Photo credit: Catboy69, Wikimedia Commons, CC BY 4.0.

AI is clearly affecting employment, but estimates of its employment impact vary wildly. S&P Global's recent executive survey showed that 42 per cent of organizations abandoned most of their AI initiatives in 2025, compared with 17 per cent in 2024. And a 2024 RAND report indicated that more than 80 per cent of industrial AI projects fail, mainly due to process complexity, poor data quality, and lack of real-world context. The vice president of vehicle hardware engineering at Ford, Charles Poon, explained, "Mistakenly, we thought that by just introducing artificial intelligence and adjusting the design requirements that we had, that that would produce a high-quality product." Ford recently brought back 350 experienced engineers it had fired and tried to replace with AI.

The building of data centers will undoubtedly create jobs for a sector of construction workers. Nobody knows how many. Like most construction jobs, these jobs are temporary. In a Cologix data center in Columbus, Ohio, construction lasted on average six and a half weeks, with about 146 workers on site at a time. Jobs building data centers often are taken not by local workers but by workers from all over the country who come in temporarily to take the temporary jobs. The Industrial Development Agency in Genessee County, New York anticipates that 60% of the construction workforce at a proposed Stream US Data Centers Project will be from outside of the 14-county region.

Data centers create few permanent jobs. According to Kartik Hosanagar, co-director of the Wharton Business School's AI research center, "Most data centers employ about one hundred to 200 people. In fact, when Apple created a $1 billion data center in North Carolina, the news stories reported that there were less than a hundred permanent jobs created as a result."

A study of data centers in Texas found, not surprisingly, that when a data center opens there is a gross increase in data center jobs in a county. But, more surprisingly, these job increases are "offset by job losses in other sectors." In other words, *"though there are gross job flow changes, there is no discernable net change in jobs associated with the data centers in Texas."*

How many jobs will be destroyed by the AI that data centers power? The answer is, nobody knows. Some of the claims made by the AI industry seem extravagant.

> "Dario Amodei, the head of Anthropic, has warned that A.I. could eliminate 50 percent of entry-level white-collar jobs within years. The tech investor Vinod Khosla predicted last year that A.I. would replace 80 percent of jobs by 2030. Elon Musk has said the technology will render work 'optional.'"

Non-industry accounts indicate that the impact of AI on workers will be extensive. For example, researchers at Boston Consulting Group estimated that more than half of the jobs in the United States would be "reshaped" by artificial intelligence over the next two to three years, though far fewer would be replaced entirely. Amazon delivery driver Jonathan Rosenblum gives a vivid description of what that reshaping can mean:

> "When I'm in the Amazon truck, every movement I make is tracked with technology and evaluated by AI programs — where I am, which packages I've delivered, and whether it's keeping pace with the algorithm that Amazon has determined I must meet. Readouts at the end of every shift show how each of my deliveries compared to the timing prescribed by Amazon's algorithmic standard. We are evaluated every week on whether we took accurate photos on delivery, delivered the packages exactly where the customer requested, and got good or bad customer feedback. Through the system, drivers who don't "make rate" or who don't meet Amazon's prescribed standards don't stay employed.
>
> "Employers everywhere are seeking to imitate the behemoth's labor model of exploitation, job instability, and — terrifyingly — the deployment of AI technologies to discipline and disempower workers. This workplace dystopia is being perfected at Amazon, then exported to other employers — in factories, grocery stores, hospitals, restaurants, hotels, construction sites, laboratories, and offices."

AI-related layoffs of tech workers at tech firms have made big headlines. But tens of millions of "back office" jobs are also threatened, such as customer service representatives, bookkeepers, payroll clerks, human resources specialists, and many others. These jobs are predominantly or overwhelmingly held by women. Says Molly Kinder, a former researcher on AI at the Brookings Institution, "I worry that A.I. will be to high-school-educated women what deindustrialization was to high-school-educated men.

Whatever the future holds, AI is already destroying jobs right now. Researchers at Stanford University found that employment is already declining for entry-level workers in jobs that were highly exposed to A.I. "Early-career workers (ages 22-25) in AI-exposed occupations experienced 16% relative employment declines."

Derailing the Greentech revolution?

Data centers use massive amounts of energy. They already used 448 terawatt hours globally in 2025, more electricity than all but 10 countries. That is on track to double within four years. Some data centers consume more energy than a mid-size city. According to Kartik Hosanagar of the Wharton Business School's AI research center, in some US states data centers are already consuming up to 5% of all energy used in the state. In two to three years that is projected to be over 10% in most states. By 2030, data centers may consume enough electricity to increase the annual growth in electricity demand nearly five fold. This July, BloombergNEF's estimate of projected U.S. data centers' power capacity by 2035 increased 83% compared to their estimate just half a year earlier. Data centers would account for about 20% of total US electricity consumption by 2035, up from less than 6% today.



Roof of a data center featuring cooling towers and backup generators, November, 23rd, 2025. Photo credit: Rsparks3, Wikimedia Commons, CC0 1.0 Public Domain.

US utilities are racing to build new fossil-fuel plants and are keeping aging gas and coal plants open to meet the swelling requirements of data centers. But often the grid simply can't keep up. Delays are holding up data centers' connections to the electric grid by as much as 12 years. So big tech is investing massively to produce its own power by any means available. The biggest growth is in the gas industry, including fracking firms and pipeline companies. Gas companies are building new plants solely to supply data centers, leading to the largest ever construction boom of natural gas-fired power plants.

Some of the demand for electricity is being met by Greentech. For example, Google just developed the world's largest grid-scale battery to power a data center in Minnesota, and purchased an energy company with which it is expanding renewable development, including a new "off the grid" center in Texas that will include wind, solar, batteries, and gas.

But the new energy for data centers is coming overwhelmingly from fossil fuels. Since 2023, some communities have seen a 48% increase in greenhouse gas emissions because of data centers. An example: Mississippi Power agreed to keep burning coal at one of its plants for roughly a decade longer than planned. In Michigan and other states, data centers have effectively derailed the grid's planned transitions to renewable energy. Meta plans to build 10 gas power plants across Louisiana for its data centers.

The AI industry and data centers represent an extraordinary concentration of wealth and power. According to the investment firm Jeffries, Amazon, Google, and Microsoft account for more than half of the country's data center power capacity. Due to the data center boom, Microsoft consumes nearly four times as much electricity as it did before the pandemic; Google's electricity use has more than doubled. Amazon's emissions increased by 16% last year; Google's increased by 18%; Microsoft's grew by 25%.

Data centers are dramatically increasing electricity costs for utilities' residential and business customers. Utilities requested $18.6 billion in electric and gas increases in the first six months of this year, according to a new report from the nonprofit PowerLines. More than $9 billion of those requests were filed in the second quarter of 2026 alone, up 26% from the same period in 2025. On July 14 the nation's largest electrical grid operator said rising electricity costs would add $6.3 billion to the bills of millions of households and businesses within the next three years as a result of the power

demands of data centers. Some studies estimate electricity bills may double by 2039 if data centers continue to be built at current rates.

Unconstrained, the rise of hyperscale data centers threatens to accelerate greenhouse gas emissions and thereby put climate change on steroids. It also threatens the jobs of millions of workers, local environments, neighboring communities, and the affordability of electricity, water, and other necessities of life.

The next chapter will describe the "Data Center Rebellion" that is emerging from the grassroots around the country and presenting an unprecedented challenge to hyperscale data centers and the tech oligarchs who are attempting to impose them on American communities.

Chapter 11: The Data Center Rebellion

The threats presented by hyperscale data centers are galvanizing resistance in hundreds of communities around the country. How are those movements developing? What is their significance? And how might they help shape a "Greentech New Deal" to address our climate, affordability, and democracy crises?



Anti-data-center sentiment in rural Kansas neighborhood, May 24, 2026, Photo credit: Catboy69, Wikimedia Commons, CC BY 4.0.

Artificial intelligence (AI), and data centers in particular, are generating an unprecedented resistance – in Texas they call it the Texas Data Center Rebellion. Robinson Meyer of the climate news website *Heatmap* recently told the New York Times,

> "Every quarter, we poll about 4,000 Americans and we ask: Would you support or oppose a data center being built near where you live? We asked that question in August of last year, and Americans were very split. They were about 43 percent in support and 42 percent against. We asked again in the spring, and this time, 21 percent of Americans said they would support a data center being built near where they live, and 71 percent said they would oppose it. So it is a staggering shift, basically, in how Americans feel about this industry and about this form of land use in their communities."

In the latest poll from *Heatmap* three-quarters of Americans now say that they would oppose a new data center being built near where they live. Just 4% say they would "strongly support" a data center proposed in their area.

A June poll from Data for Progress finds that nearly two-thirds of voters (63%), including 67% of Democrats, 66% of Independents, and 58% of Republicans, support pausing the construction of *all* US AI data centers nationwide for at least one year. Most voters think AI will increase unemployment in the U.S. and support regulations to give workers decision-making authority over how AI is used in the workplace.

Data centers are meeting unprecedented local resistance. According to a recent report, data center opponents blocked or delayed at least 75 projects around the country worth about $130 billion just from January through March 2026. Active opposition groups grew from 396 at the end of 2025 to 833 by the end of March 2026.

According to Brad Johnson of *Hill Heat*, "a strong pattern has emerged of hyperscale data centers causing popular revolt at the ballot box."

> "After the city council of Festus, Mo. voted in favor of a $6 billion hyperscale proposal, voters promptly kicked out all four incumbents on the ballot in an April election. On the same day in April, voters in the Milwaukee suburb of Port Washington WI. showed their irritation with a massive $15 billion hyperscale facility by overwhelmingly approving a ballot measure to restrict future hyperscale projects from receiving tax-increment financing.
>
> "In May, supervisors in Meridian, MI. voted to put a six-month pause on data center proposals. Meanwhile, in the Grand Rapids suburb of Lowell Township, township board members refused to adopt a data center moratorium, with the majority of the council opting to court a $1 billion proposal from Microsoft instead. Now, recall petitions are circulating against the board members who voted against a moratorium, with the chair of the effort accusing Lowell board members of 'representing Microsoft more than the people who elected them.'"

Some, even on the left, have portrayed the Data Center Resistance as affluent NIMBY-ism. Data scientist Geoff Holtzman analyzed a dataset of current and proposed data center projects alongside US census data and came to these startling conclusions:

1. The poorest neighborhoods resisted data centers at nearly five times the rate of the wealthiest (19.0% vs. 3.8%). "The highest rate of resistance comes from neighborhoods with a median income of between $8 thousand and $72 thousand. The lowest rate of resistance is in neighborhoods where the average household makes between $133 thousand and $250 thousand per year."
2. Recently proposed data centers that faced pushback were canceled or suspended at more than five times the rate of data centers that didn't (28.2% vs. 5.2%).
3. Cancellation rates are highest in lower-income areas, a fact fully explained by their higher rates of pushback. "The odds of cancellation are six times higher in neighborhoods that fight than in neighborhoods that don't. Increased cancellation in low-income areas is fully explained by high rates of pushback in these neighborhoods, so continued proposals in these areas may stoke outrage, drive resistance, and increase cancellation rates."

The Moratorium Cometh

According to a new review of public records conducted by Heatmap Pro, more than 500 counties or municipalities now actively restrict or block new data centers. These constraints, such as steep setback requirements, impossible noise limits, or outright bans on permit approvals, all but forbid the construction of data centers. The overwhelming majority of these restrictions have been enacted since the beginning of 2026. Nearly 190 have been passed since June 1.

Earlier this year the New York state legislature passed a one-year moratorium on new data centers. The law would block data center permits for "hyperscale" facilities, which it defines as those with a peak load of more than 20 megawatts. Soon thereafter, New York governor Kathy Hochul imposed the nation's first-ever statewide freeze on new "hyperscale" data centers that can use 50 megawatts or more of power. A recent report found that bipartisan proposals for moratoriums on constructing data centers were introduced in 14 states from January through March.

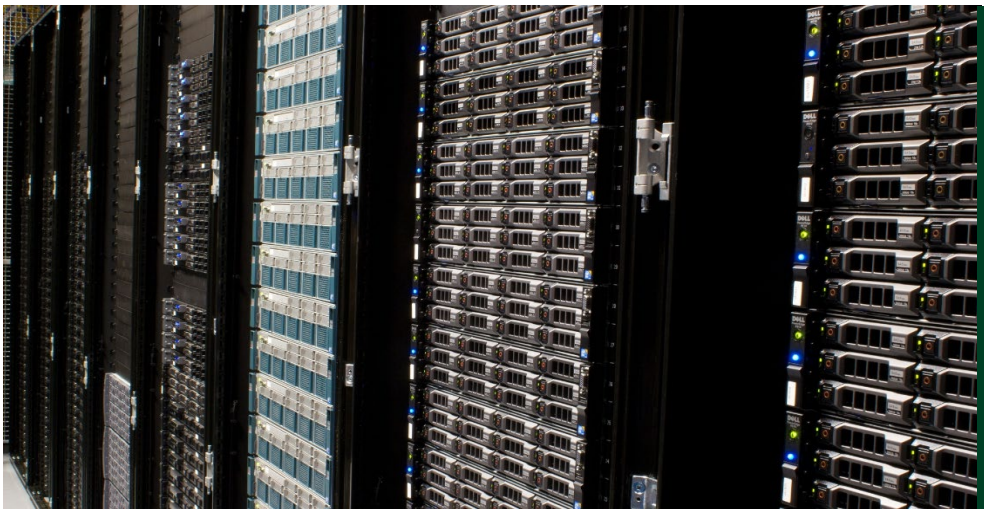


It's Time for a Moratorium on Data Centers | Sen. Bernie Sanders
View Youtube video: https://www.youtube.com/watch?v=f40SFNcTOXo

Senator Bernie Sanders and Representative Alexandria Ocasio-Cortez have proposed a national data center moratorium that would temporarily ban the construction of data centers in the U.S. to "buy time to create strong, federal guardrails for AI." Sen. Ed Markey and others have made other proposals for reigning in data centers. More surprisingly, Rep. Frank Pallone Jr. the top Democrat on the House Energy and Commerce Committee, recently called for a nationwide halt to data center construction.

Efforts to constrain data center impacts have taken a variety of forms besides moratoriums. Michigan, Oregon, and Minnesota passed laws in the last 18 months designed to protect their pre-existing requirements that electric utilities use only emissions-free energy sources by 2040. Minnesota and Oregon ordered regulators to ensure that the energy that supplies data centers is in line with their emissions-reduction goals, while Michigan required hyperscale data centers to use 90% clean energy within six years to receive its lucrative sales tax exemption. Ohio, Illinois, and Arizona paused subsidies and tax incentives for data center developers.

The Data Center Rebellion and the Greentech New Deal



Servers, Photo credit: Victorgrigas, Wikipedia Commons, CC BY-SA 3.0.

However ludicrous the more extreme claims made for AI's impact, that impact is too great to ignore. The continued growth of AI and data centers at current rates threatens to derail the Greentech revolution. Unrestrained, they will lead to aggravated climate change, local environmental devastation, unaffordable electricity, and a substantial growth and centralization of oligarchical power. It's hard to see who they will benefit, other than a handful of the world's richest men.

Just as there is little precedent for the explosive proliferation of hyperscale data centers, so there is little precedent for the data center rebellion. David Wallace-Wells and Robinson Meyer discussed in the *New York Times* whether the gathering coalition of Americans against data centers "could be the next Occupy Wall Street movement or Tea Party." Perhaps the closest we have to a historical precedent is the anti-toxics movement that followed the exposure of toxic chemical dumps beneath low-income neighborhoods at Love Canal and the nationwide explosion of protest that followed as hundreds of communities around the country discovered that they too were exposed to toxic dumps. They created a nationwide movement against toxic dumps and won the landmark Superfund law which established unprecedented accountability for corporate polluters.

The local anti-data center movements are about as close as you can come to true grassroots rebellion. While many organizations are providing support, they are not the result of an organizing campaign or national call. Close examination shows that they are being created by people talking with their neighbors, banding together in their neighborhoods, packing meetings, confronting politicians, and throwing out officials who don't take a stand against local data centers. Red and blue communities are joining together across party and ideological lines. Participants are overwhelmingly non-affluent – working class if you will. While there is little common ideology, there is certainly a widespread ethos based on the belief that wealthy, powerful elite forces are threatening the livelihoods and wellbeing of ordinary people and that people must join together to force government to put a halt to such threats.

The outcome of any such movement is unpredictable. It could, like the Tea Party, be captured by rightwing populist elites. It could, like Occupy Wall Street, dissipate in the face of repression and lack of clear direction while leaving a transformed political landscape behind. It could, like the post-Love Canal anti-toxics movement, impose significant limits on corporate

depredations through local campaigns and federal legislation. Or it could become part of a far deeper transformation of the political, economic, and social landscape.

One constructive outcome might be for the Data Center Rebellion to converge with an emerging Greentech New Deal. For the past eight years, the Green New Deal has provided a highly popular vision and program that would protect the climate in ways that would create good jobs for working people, end poverty, and alleviate injustice.

The original Green New Deal called for "a new national, social, industrial, and economic mobilization on a scale not seen since World War II and the New Deal." The Green New Deal aimed to save the climate by meeting scientific targets for the reduction of greenhouse gases. It would seek to end the epidemic of poverty by mitigating deeply entrenched racial, regional, and gender-based inequalities in income and wealth and distributing federal aid and other investment equitably to historically impoverished and marginalized communities. And it would provide good jobs constructing a just and climate-safe economy. A poll soon after it was initially proposed in 2018 found that 40% of registered voters "strongly support" and 41% "somewhat support" the concepts behind the Green New Deal. Another poll five years later in 2024 found that "the Green New Deal is still incredibly popular."

Since the original proposal for a Green New Deal, the "Greentech revolution" has transformed the cost and viability of fossil free energy. Today a "Greentech New Deal" can be driven forward by an entirely different economic environment – one in which the transition to fossil free energy is not a costly and painful duty, but can instead create major opportunities for the American people to build a happier, healthier, and more just society and world. Indeed as we have seen above, the Greentech revolution is driving forward at local and state levels despite opposition from Trump, MAGA, and the fossil fuel industry.

While a convergence of the Data Center Rebellion and the Greentech New Deal is far from inevitable, we can envision some steps that might help lead in that direction:

- Continue and expand the local struggles against data centers. Those struggles have put the issue squarely in the public eye, shown that communities are not powerless, and already blocked a remarkable number of data center proposals. They can take heart from the local struggles to shut down coal-fired power plants which have led to retirement commitments for over 70% of coal plants since 2010.
- Continue and expand the burgeoning coalitions promoting data center bans and moratoriums at city, state, and national levels. Force politicians and elected officials to impose such policies with no ifs, and, or buts.
- Encourage the broad array of forces that backed the Green New Deal, and continue to implement it at local and state levels, to use their considerable power and resources to champion the struggle against data centers.
- Steadily broaden the Data Center Rebellion's implicit– and often articulated – goal of replacing oligarchic with democratic control of the economy.
- Demand that the "precautionary principle" – that new innovations not be permitted until they are proven harmless — be applied both to data centers and to fossil fuel infrastructure.
- Prioritize the blocking of fossil fuels for data centers.

- Present the Greentech New Deal as an alternative to the billionaire plan to dominate our communities, our economy, and our lives.
- Promote the Greentech New Deal as at once the solution to the climate, the jobs, and the affordability crises.

A handful of hyperscalers are trying to shape the future through AI and the data centers on which they depend. But the future may also be shaped in part by the unprecedented popular mobilization against them.

The Data Center Rebellion poses the question: can communities establish the principle that major infrastructure decisions should be subject to democratic deliberation rather than determined primarily by corporate investment plans.

Chapter 12: America's Future: Fossil Fuel Island in a Greentech World?

What does the global Greentech revolution mean for the American people? It could open new vistas of a Greentech New Deal. But as long as the US opposes rather than joining the Greentech revolution, that portends not only climate catastrophe, but economic catastrophe as well.



Collage (Art: alonesbe, Envato | Photo Credit of Trump: Gage Skidmore, Wikipedia Commons, CC BY-SA 2.0)

The previous chapters have shown that the Greentech revolution is transforming energy production and use worldwide. Along with its other advantages, fossil free energy has become radically cheaper than fossil fuel energy. More than 90% of utility-scale renewable projects commissioned in 2025 delivered power below the cost of the cheapest new fossil-fuel plant built in their market. Natural gas energy is currently 3–4 times more expensive than solar and wind. Meanwhile, fossil fuels are increasingly vulnerable to disruptions like the Ukraine and Iran wars, which destabilize whole economies with shortages and higher prices for energy, food, and other necessities of life.

Donald Trump and the US government are doing everything they can to shut down fossil free energy and to expand our dependence on fossil fuels. That is already having a devastating effect on American workers and communities, and it is

likely to get far worse in the future. We are being trapped inside what two energy experts call a fossil fuel "energy island" as the rest of the world turns to an "electric world order."

If Trump and his fossil fuelers succeed in defeating the Greentech revolution in the US, the result is likely to be not only increased climate catastrophe, but also a growing affordability crisis; devastation for the most fossil-fuel dependent industries like autos, coal, iron, and gas; a general decline of the fossil-fuel intensive US economy; disinvestment; a loss of international competitiveness; and macroeconomic effects like inflation and recession or both.

These trends can sometimes be seen in the day-to-day operation of markets, like the decline of the US and European auto industries or the worldwide shift to renewables after the closing of the Strait of Hormuz. But paradoxically, they can also be concealed by short-term fluctuations. For example, the sharp rise in the cost of oil after the closing of the Strait of Hormuz produced a boom in oil company profits. Similarly, the rising demand for electricity for data centers created a boom for natural gas generators. Such developments might appear to refute the argument that the fossil fuel-based US economy is increasingly uncompetitive and in danger of becoming a stranded asset. However, amid all the price gyrations, nothing seems to refute the fundamental underlying fact: Fossil fuel energy will remain more expensive and less secure than fossil free energy. There is little to indicate otherwise.

The long-term decline of the fossil fuel-based economy is manifested in many ways. Here are two crucial impacts on Americans of our country's failure to join the Greentech revolution:

- It makes prices higher for Americans
- It makes prices of US-produced goods more costly and therefore less competitive

Crashing autos



Electric Car at Charging Station | Photo credit: sofiiashunkina, Envato

The headline example of eschewing the Greentech revolution is the US auto industry. For decades, the industry – supported by US government policies -- failed to invest in EVs and concentrated instead on its highly profitable gas-

guzzling cars and trucks. Briefly under the Biden administration the federal government invested in EV charging infrastructure and a $7,500 consumer tax credit. Electric vehicle sales grew 60%.

Then Trump abandoned pro-EV efforts and subsidized fossil fueled vehicles with a panoply of strategies. EV sales plummeted. The industry began shutting down its EV factories. In 2025 Stellantis wrote down $26 billion in EV-related losses; Ford reported a $19 billion loss. The auto journalist Martin Padgett told the *New York Times*, "We pulled a U-turn while the rest of the world was pushing forward."

Fossil fuel dependence is costly for American car owners. Here is what gas dependence means in dollars and cents for auto drivers: In January 2026, *before* the disruptions caused by the Iran war, the cost to drive 100 miles in an electric car was $5.77; in a gas car it was $11.23. By summer, to drive 100 miles in the electric car cost almost the same as before, $5.89; but the gas car cost $16.69 – about three times as much as the electric car.

Its failure to develop EVs and its addiction to gas guzzlers has made the US auto industry non-competitive domestically. In 1965 US companies produced more than 90% of new cars purchased in the US; today, barely a third are built by the Big Three.

The failure of the US auto industry to adopt Greentech is at least equally significant internationally. A quarter of all vehicles sold globally in 2025 were battery powered. (That figure is projected to reach 29% in 2026 due to high gas prices caused by the Iran war.) Bloomberg analysts predict that by next decade fewer than half of cars sold globally will be gas-powered. China, which provides 30% of the global car market, has already seen sales of internal combustion vehicles plummet by nearly two-thirds since 2017. China now makes 75 percent of all E.V.s sold worldwide; the United States makes around 5 percent. Susan Helper, a professor at Case Western Reserve University who was chief economist at the Commerce Department under President Barack Obama, told the *New York Times* that in the worst-case scenario the US auto industry will become a "shrinking island of ICE" (internal combustion engines), churning out outlandishly large trucks and not much else. At which point, the *Times* noted, "the obsolescence of the mighty U.S. automobile industry" would be "all but guaranteed."

About three million Americans work for automobile and parts manufacturers and dealers. About 24 million jobs depend on spending by carmakers, their employees, or car owners. Vehicle and parts makers shed about 21,000 U.S. jobs in the last year, despite Trump administration tariffs designed to force them to manufacture domestically.

The fossil fuel island

The global shift from gas guzzlers to EVs is part of a more general long-term shift from fossil fuels to fossil free energy which is rendering the US a fossil fuel island. Two energy experts summarized the current phase of this process:

> "Global clean energy investment reached a record $2.2 trillion in 2025, twice the flow into fossil fuels. In 2024, 91 percent of newly commissioned utility-scale renewable projects produced electricity more cheaply than the cheapest new fossil fuel alternative, and battery storage costs have fallen 93 percent since 2010, allowing utilities to use batteries to store solar and wind power even when the weather is uncooperative. In 2025, fossil fuel electricity generation fell in both China and India.

Even before the Iran war, "this green transition was also spreading beyond wealthy markets.

> "In 2024, Chinese solar exports to developing economies surpassed shipments to advanced economies. Pakistan imported approximately 17 gigawatts of Chinese solar modules that year, equivalent to almost half of its grid-connected capacity. In Indonesia, Thailand, and Mexico the cheapest Chinese-made EVs have reached price parity with the cheapest internal combustion options."

In July, China announced binding targets to increase wind and solar power generation by more than 50% over the next five years.

How the Greentech transition will develop in the future is of course a matter for speculation, but BloombergNEF's (BNEF) New Energy Outlook2026 provides one plausible projection:

- Solar will become the world's single largest source of electricity in the next six years, due to a major supply glut, technology advances, and falling prices.
- If countries continue on their current path of rapidly deploying economically competitive clean technologies, they stand to cut their reliance on imported fossil fuels and ultimately strengthen their energy security.
- Far more so than in previous energy crises, many countries that are dependent on fossil fuels are now able to reduce their economic exposure to energy commodity imports by adopting low-carbon technologies.

Energy investor Rob Carlson recently drew the implications for the US economy: Continuing to burn fossil fuels is a "self-imposed financial penalty" which will "ultimately degrade the country's long-term global competitiveness." The same applies to any nation or polity that "chooses to continue burning fossil fuels in any application in which electricity could instead be provided more competitively with renewables."

The replacement of fossil fuel energy by Greentech has been greatly accelerated by the war in the Persian Gulf region. According to a June 30 report by NPR, "The Iran war and high oil and gas prices have supercharged the adoption of renewables and EVs worldwide. Global investors say these technologies make financial sense and increase energy security." As fossil fuel prices soared, countries are "turning to these technologies that are basically impervious to whatever happens in the Strait of Hormuz, those being solar batteries and electric vehicles. Solar batteries and EVs have gotten a lot cheaper." Chinese battery exports rose 69% in March compared to 2025; their solar exports in March are up 84% compared to 2025.

The NPR report concluded,

> "It doesn't look good for oil long term. With all these new EVs, that means a lot less people filling up their cars with gas around the world. Before the war in Iran, the International Energy Agency was expecting global oil demand to rise this year. But the disruptions caused by the Strait of Hormuz led them to downgrade expectations to a decline in oil demand this year. In some ways, the U.S. is becoming an outlier in the global energy transition."

In the face of the Iran war energy shortages some countries have been turning to coal. But analysis by the thinktank Ember found that even in a worst-case scenario, return to coal would raise global coal-fired generation by no more than 1.8 percent in 2026 relative to a no-crisis baseline; indeed, global coal generation could still fall this year.

Currently there is little reason to expect the Gulf of Hormuz to be reopened any time soon, or for fossil fuel prices to return to their levels before the Iran war. And there are plenty of reasons to expect further disruptions with further gyrations in the future.

The US trend towards ever greater fossil fuel dependence and the consequent rise of energy prices is being further aggravated by the expansion of gas, oil, and even coal to provide energy for burgeoning hyperscale data centers. That is likely to further increase the isolation of the US as a fossil fuel island.

If the US becomes ever more a fossil fuel island in a Greentech world, the consequences are likely to be dire. Bill Hare, chief executive of the thinktank Climate Analytics, said, "Any investment in new fossil fuels now is a fool's gamble, while joining the race to renewables can only bring benefits – not just jobs and cheaper energy at stable prices, but energy independence and access where it's needed most."

Conclusion:
A Fossil Fuel Island Or A Greentech New Deal?

As we have seen throughout this report, the Greentech revolution has the potential to limit and even reverse climate destruction. It has the potential to bring people together, locally, nationally, and worldwide in a common project. And it has the potential to lay the groundwork for a prosperous, cooperative economy for all.

As we saw in Chapter 5, the Greentech revolution is a dagger aimed at the heart of the fossil fuel powers and principalities. They are doing all they can to crush it. As we saw in Chapter 6, they are partially succeeding, but the Greentech revolution is proving irresistible, even in the US. The Data Center Rebellion described in Chapter 11 suggests the potential for large- scale popular action to reshape our economic trajectory.

What would an unleashed Greentech revolution look like here? That is something for millions of people to determine. But they will not be starting from scratch. The community, municipal, and state programs described in Chapters 7-9 above provide a starting point. They show that the Greentech revolution can move forward from below, even when the federal government is still controlled by Trump and MAGA. And they provide building blocks for a national and global Greentech New Deal—one that could direct the Greentech revolution toward a just transition to a democratic and climate-safe world rather than allowing its benefits to be captured primarily by corporate and fossil fuel interests.

As we saw in Chapter 12, the US is on the road to becoming a fossil fuel island in a Greentech world, with disastrous economic as well as environmental consequences for its people. But as we saw in Chapters 1-4, the Greentech revolution can provide the basis for a transformation of our energy system, making possible a transformation of our economy and our society as a whole.

Those are the stark alternatives we face.